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THE LANCET.

No. 4253. Vol. CLXVIII. LONDON, SATURDAY, MARCH 4, 1905. [Pp. 120+56.

CONTENTS.

HUNTERIAN LECTURES (Abstract of the) on the Changes Produced by Inflammation in the Conjunctiva. Delivered before the Royal College of Surgeons of England on Feb. 27th and March 1st and 3rd, 1905, by M. STEPHEN MAYOU, F.R.C.S. Eng., Chief Clinical Ophthalmic Assistant at the London Hospital and at the Royal London Ophthalmic Hospital.—Lecture I. 545

THE ERASMUS WILSON LECTURES on Peritonitis, a Bacteriological Study. Delivered before the Royal College of Surgeons of England on Feb. 20th, 22nd, and 24th, 1905, by LEONARD S. DUDGEON, M.R.C.P. Lond., M.R.C.S. Eng., Superintendent of the Clinical Laboratory and Demonstrator of Clinical Pathology at St. Thomas's Hospital, &c.; and PERCY W. G. SARGENT, M.A., M.B., B.C. Cantab., F.R.C.S. Eng., Resident Assistant Surgeon at St. Thomas's Hospital, &c.—Lecture II. 548

ORIGINAL ARTICLES.

Plastic Surgery. By C. R. B. KEETLEY, F.R.C.S. Eng., Senior Surgeon to the West London Hospital. — *Illustrated* 557

The Treatment of Severe Curvatures in the Tibiæ by Means of Manual Osteoclasis. By T. H. OPENSHAW, C.M.G., M.S. Durh., F.R.C.S. Eng., Surgeon to the London Hospital; Senior Surgeon to Poplar Accident Hospital; and Surgeon to the National Orthopædic Hospital.—*Illustrated* 563

The Cause of Pain in Cases of Gastric Ulcer and its Bearing upon the Operation of Gastrojejunostomy. By C. W. MANSELL MOULLIN, F.R.C.S. Eng., Senior Surgeon and Lecturer on Surgery at the London Hospital 565

A Case of Recurrent or Successive Ovarian Papilloma with Sequent Ventral Hernia, followed by Cervical Epithelioma; Two Abdominal Cœliotomies; Operation for Ventral Hernia; Vaginal Hysterectomy; Recovery. By E. STANMORE BISHOP, F.R.C.S. Eng., Honorary Surgeon to Ancoats Hospital, Manchester 566

The Medical Man as Expert Witness. By W. B. RANSOM, M. A. Cantab., M. D. Lond., F.R.C.P.Lond. 591

CLINICAL NOTES:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A Case of Acute Intussusception of the Sigmoid Colon due to a Subserous Polypoid Lipoma; Laparotomy; Excision of Polypus; Recovery. By JOHN HOWSON RAY, M.B. Viet., F.R.C.S. Eng. 567

Fracture of the Anterior Fossa of the Skull involving the Optic and Sixth Nerves. By LAURENCE C. PANTING, M.D., B.Ch.Oxon. 568

A MIRROR OF HOSPITAL PRACTICE.

ROYAL BERKSHIRE HOSPITAL, READING:
A Case of Peritonitis due to the Pneumococcus. (Under the care of Dr. Francis H. Hawkins) 568

EGYPTIAN GOVERNMENT HOSPITAL, ALEXANDRIA:
A Case of Contusion of the Abdomen; Rupture of the Large Intestine; Operation; Recovery. (Under the care of Mr. A. Webb Jones) 569

MEDICAL SOCIETIES.

ROYAL MEDICAL AND CHIRURGICAL SOCIETY:
Subsequent Course and Later History of Cases Operated on for Appendicitis 569

MEDICAL SOCIETY OF LONDON:
Analysis of 300 Consecutive Gynæcological Laparotomies.—Some Remarks on Cæsarean Section 570

CLINICAL SOCIETY:
Exhibition of Cases 571

ROYAL ACADEMY OF MEDICINE IN IRELAND:
Exhibition of Specimens 572

SOCIETY FOR THE STUDY OF DISEASE IN CHILDREN:
Exhibition of Cases 573

GLASGOW MEDICO-CHIRURGICAL SOCIETY:
Cystoscopy, with Special Reference to the Use of the Cystoscope in the Diagnosis of Renal Disease 573

LEEDS & WEST RIDING MEDICO-CHIRURGICAL SOCIETY:
Exhibition of Cases and Specimens 574

ULSTER MEDICAL SOCIETY:
Exhibition of Cases 574

REVIEWS AND NOTICES OF BOOKS.

Materia Medica of India and their Therapeutics. By Rustomjee N. Khory, M.D. Brux., M.R.C.P. Lond., &c., and Nanabhai N. Katrak 574

A Text-book of Quantitative Chemical Analysis. By J. C. Olsen, A.M., Ph.D. 575

A Text-book of Pysiological Chemistry. By Olof Hammarsten of Upsala. Translated by John A. Mandel, D.Sc. ... 575

The Study of Chemical Composition. By Ida Freund 576

The Essentials of Chemical Physiology, for the Use of Students. By W. D. HALLIBURTON, M.D. Lond., F.R.S. Fifth Edition 576

X Rays: their Employment in Cancer and other Diseases. By Richard J. Cowen, L.R.C.S. Irel., L.R.C.P. Irel., &c. 577

Premature Burial and How it may be Prevented. By Wm. Tebb, F.R.G.S., and Colonel Edward Perry Vollum, M.D. Second Edition, by W. R. Hadwen, M.D. St. And. 577

The Phonographic Record of Clinical Teaching and Medical Science 577

REPORTS AND ANALYTICAL RECORDS FROM THE LANCET LABORATORY.

Sodium Perborate (Wellcome Brand) 577
"Record" Old Scotch Whisky ... 577
Chocovum 577
Calox 578
Diabetic Spice Buns 578
Gilmour's Oatmeal Stout (Quaker Brand) 578
Sultana Bread 578
Bitter Beer 578

NEW INVENTIONS.

A Spring Stem Pessary.—*Illustrated* 578
A Portable Lamp for Use in Laryngology.—*Illustrated* ... 578

LEADING ARTICLES.

OVERWORK 579

ARSENIC IN TEXTILE FABRICS AND WALL PAPERS 580

SHIFTING DULNESS IN THE THORAX AND THE ABDOMEN ... 581

ANNOTATIONS.

A Proposed Union of the Medical Societies of London 582
The Vitality of the Typhoid Bacillus in Oysters and other Shell-fish 582
A Libel upon Hospitals 583
Pyromania, a Psychosis of Puberty 583
Leprosy and the Law in New South Wales 584
Current Theories of the Hereditary Process 584
The Medico-Psychological Association of Great Britain and Ireland 585
Paratyphoid Fever 585
Labour and the Fertility of the Soil 586
The Demonstration of Typhoid Bacilli in the Blood of Cases of Enteric Fever 586
Public Health in British Guiana 586
Chylous Abdominal Cyst 587
The Public Health Bill of the British Medical Association ... 587
Amaurotic Family Idiocy 587
Sterilised Milk Depôts in Paris .. 588
Papain 588
Fatal Result of a Fall Out of Bed 589
Chloræthoform 589
The Correction of Local Birth Statistics 589
The International Congress of Medicine at Lisbon 590
The Future of the London Medical Schools 590

LOOKING BACK.

(From THE LANCET, Saturday, March 3, 1855.)

To the Right Hon. Robert Peel, &c., &c. (From *The Times* of February 26) 592

MEDICINE: ITS PRACTICE AND ITS PUBLIC RELATIONS.

Chapter III.

The Figures of the Medical Profession and the Chances of Success 593

VITAL STATISTICS:
Health of English Towns 595
Health of Scotch Towns 596
Health of Dublin 596

SPECIAL ARTICLES.

The Services: Army Reform; Soldiering in Schools; Physique in the Army; the War in the Far East 596
The Epidemic of Typhoid Fever at Lincoln 602
Cholera and Plague in the Near East 604
Manchester 605
Leeds 606
Wales and Western Counties Notes 606
Ireland 607
Paris 608
Berlin 609

CORRESPONDENCE.

The Indian Medical Service (Professor W. J. Simpson) 598
The University of London and Medical Education (Dr. Leonard Hill) 598
School Greek in Some of its National Aspects and the *Via Media* (Dr William Ewart) ... 599
The Sale of Patent Medicines on the Continent (Mr. T. Garrett Horder) 599
Medical Teaching in the Metropolis (Dr. Harry Campbell) ... 599
Duodenal Ulcer (Mr. W. Bruce Clarke) 600
The Gouty Diathesis (Dr. S. A. Arany) 600
The Intrusion of the Layman into Medical Practice (Messrs. Allen and Hanburys, Ltd.) ... 600
The Incipient Stage of Insanity (Mr. C. Williams) 600
Coffee and Sewage (Mr. R. J. Friswell) 601
The Queen's Jubilee Hospital and the Medical Staff (Mr. G. R. Everitt) 601
The Clerkship of St. Bartholomew's Hospital (Mr. Sidney Phillips) 601
The Rational Treatment of Fractures 601
An Improved Hammock for Invalid Railway Travellers ... 613
Incurable Patients (Mr. John Gay) 614
Some Questions with Regard to Milk-supply 614
The Case of Dr. A. D. Griffiths (Dr. A. P. Fiddian) 614

MEDICAL NEWS.

Royal Interest in Football 597
University of Cambridge 597
Foreign University Intelligence 609
University of Oxford 609
Literary Intelligence 609
Vaccination Grant 610
The late Mr. A. K. Crossfield ... 610
Obstetrical Society of London and the Examination of Midwives 610
Queen Charlotte's Lying-in Hospital, Marylebone-road, N.W. 610
Central Midwives Board 610

PARLIAMENTARY INTELLIGENCE.

Notes on Current Topics 610
House of Commons 610

Appointments 612
Vacancies 612
Births, Marriages, and Deaths ... 613
Notes, Short Comments, and Answers to Correspondents ... 613
Medical Diary 614

FOR INDEX TO ADVERTISEMENTS SEE PAGES 2 & 4.

INDEX.

MEDICAL AND OTHER BOOKS AND PUBLICATIONS.

COVER.

PAGE

BAILLIERE, TINDALL & COX—
Barwell .... Lateral Curvature of the Spine, &c. 1
Latham .... Pulmonary Consumption 1
Vallak .... Principles of Asepsis 1
Vincent .... Nutrition of the Infant 1

BALE, SONS & DANIELSSON:—
Hutchinson.. Facial Neuralgia 1

CHURCHILL, J. & A.:—
Brown .... Nervous Diseases 1
Fenwick .... Handbook of Clinical Cystoscopy 1
Maylard .... Abdominal Pain 1
Mitchell .... Dreaming, &c. 1
Simon .... Physiological Chemistry 1
Squire's Pocket Companion to the British Pharmacopœia 1
West .... How to Examine the Chest 1

CONSTABLE & CO.:—
Battle & Corner .... Diseases of the Appendix 1
Lenmonier.. Methods of Treatment.. 1

CORNISH BROS. (BIRMINGHAM):—
Leedham-Green .... Sterilisation of the Hands 1

GLAISHER:—
Herschell .. Constipation 1
Merrill .... Neurasthenia 1
West .... Granular Kidney, &c. 1

GRIFFIN & CO.:—
West .... Organs of Respiration.. 1

MEDICAL PUBLISHING CO.:—
Lane .... Chronic Constipation .. 1

PENTLAND, Y. J.:—
Pentland's Text-books 1

SAUNDERS & CO.:—
Three Successful Books 1

THE LANCET:—
THE LANCET Analytical Commission on Brandy 10

WILLIAMS & NORGATE:—
Stephens & Christophers Practical Study of Malaria 1

MEDICAL LIBRARIES, &c.:—
Kimpton—Books wanted 1

APPLETON, S.:—
Beck .... X-Ray Diagnosis 7
Ferguson .... Mixology 7
Fox .... Diseases of the Eye 7
Janeway .... Blood Pressure 7
Osler .... Practice of Medicine 7
Pryor .... Gynæcology 7
Rosser .... Pathology 7
Robinson .... Clinical Lectures, &c .. 7

ASH & SONS:—
Howitt .... Nitrous Oxide &c. 10

BAILLIERE TINDALL & COX:—
Bigg .... Consumption 11
Lindsay .... Diseases of the Lungs and Heart 10

BALE, SONS & DANIELSSON:—
British Gynæcological Journal 10

CASSELL & CO.:—
Herman .... Diseases of Women 10
Marsh .... Diseases of the Joints .. 11
Morris, H. .. Surgery of the Kidney and Ureter 11
" .. Injuries and Diseases of Genital, &c., Organs 11

CHURCHILL, J. & A.:—
Bigg .... Spinal Caries 6
" .... Spinal Curvature 6
" .... Deformities of the Head and Neck 6
" .... Amputations 6
" .... Manual of Orthopædy 6
Butlin .... Malignant Disease 11

CHURCHILL.—(Continued).
Cripps .... Diseases of the Rectum 12
" .... Cancer of the Rectum .. 12
Marsh .... Clinical Lectures and Essays 11
Squire's Pocket Companion to the British Pharmacopœia 9

GLAISHER:—
Blake .... In'ernal Catarrhs 11
Cowen .. X-Rays 11
Goldingworth .. Diabetes White, F.R.S. .. 11
Herschell .. Intragastric Technique 11
Williams .... Short Essay on Insanity 11

GRIFFIN & CO.:—
Burnet .... Foods and Dietaries 6
Davies .... Hygiene 8
Donald .... Midwifery 6
Hiborne .... Pharmacy, &c. 9
Elder & Fowler .... Diseases of Children 6
Hellier .... Infancy, &c. 6
Humphry .. Nursing 6
Phillips .... Diseases of Women 6
Reid .... Practical Sanitation 8
Riddell .... Ambulance 6
Westland.... Wife and Mother 6

KEGAN PAUL & CO.:—
Taylor .... Diseases of the Eye 10

LEWIS:—
Binney .... Operative Surgery.... 8

MACMILLAN & CO.:—
Biology, Anatomy, and Physiology .. 9
Hewitt .... Anæsthetics 9
Hood.... Treatment of Injuries .. 9
Lockwood .. Appendicitis 9
Manual of Medicine 9
New System of Medicine 9
Pathology and Bacteriology 9
Pharmacology and Therapeutics 9
Sadler .... Diseases of the Breast .. 9
Smith .... Differential Diagnosis.. 9
Stonham .... Manual of Surgery 9
System of Gynæcology 9

RENSHAW:—
Wood .... Application of Trusses 11

SAUNDERS & CO.:—
Bickham .. Operative Surgery.... 5
Keith-Wiglo's Practice 11
Spratling.... Epilepsy 5
Steiwagon .. Diseases of the Skin.... 5

SMITH, ELDER & CO.:—
Barnes .... Obstetric Medicine &c. 3
" .... Manual of Midwifery for Midwives.... 3
Wells .... Anatomy 3
Finlayson's Clinical Manual for the Study of Medical Cases 3
Gee .... Auscultation, &c. 3
Heath's Dictionary of Practical Surgery 3
Juler .... Ophthalmic Science, &c. 3
Keetley .... Orthopædic Surgery.... 10
" .... Gastric Ulcers 10
" .... Complications 10
Lawson .... Diseases and Injuries of the Eye 3
Lefevich .... Index of Symptoms 3
Marshall & Hurst .... Practical Zoology 3
Marshall .... Vertebrate Embryology 3
Playfair .... Practice of Midwifery 3
Schäfer .... Practical Histology 3
St. Bartholomew's Hospital Reports .. 3

WRIGHT & CO. (BRISTOL):—
Bowning .. Prepare ns in Mouth a
Goodall .... Eruptive Fevers 6
Hadley .... Pulmonary Diseases.... 6
Jones .... Industrial Surgery 6
Rockwell .. Modern Treatment of Pneumonia.... 8
Stockman & Charteris .. Materia Medica, &c. .. 6
Todd .... Ear Diseases 6
Turner .... Dental, &c., Surgery.... 6

MEDICAL LIBRARIES, &c.:—
Brooks—Stammering 11
Glaisher Publishers' Remainders 11
Howard—Medical Work on Fake Nyms 11
Railray—Divine Hygiene 11

OFFICIAL AND GENERAL ANNOUNCEMENTS.

APPOINTMENTS VACANT:—
Birkenhead Borough Hospital 93
Birkenhead Union 93
Bradford Children's Hospital 91
Brighton Throat and Ear Hospital 91
Bristol Royal Infirmary 91
Cheltenham General Hospital 93
City of London Hospital for Diseases of the Chest, Victoria-park 90
County Borough Asylum, Middlebrough 90
Cumberland Infirmary, Carlisle 93
Dumfries and Galloway Royal Infirmary 90
Evelina Hospital for Sick Children, Southwark 90
General Infirmary, Leeds 91
Great Northern Central Hospital 91
Great Hospital, Dudley 93
Hampstead General Hospital 93
Herts County Asylum, St. Albans 91
Highlands and Islands of Scotland 93
Lincoln County Hospital 91
London Hospital, Whitechapel 90
London Temperance Hospital 91
Macclesfield General Infirmary 90
Medical Department of the Navy 10
Metropolitan Hospital, Kingsland road 92
Middlesex Hospital Cancer Research Laboratories 90
National Hos for the Paralysed 90
Norfolk and Norwich Hospital 90
Northampton General Hospital 92
North Cambridgeshire Hos., Wisbech 91
Oldham Infirmary 91
Paddington-green Children's Hos. 12
Parish of Monkash Dudlows, Staffordshire 93
Royal Dental Hospital of London School of Dental Surgery 92
Royal Ear Hospital, Soho 90
Royal Hospital for Diseases of the Chest, City-road 92
Seton Infirmary 91
Scholastic, Clerical and Med. Assoc.... 92
University of Glasgow 91
Walsall and District Hospital 92
West London Hospital, Hammersmith-road 92
Westminster General Dispensary 91
Wolverhampton and Staffordshire General Hospital 91

ASSISTANCIES, MEDICAL 97

ASYLUMS, HOMES, &c.:—
Aberystwith, the Riarrits of Wales .. 84
Ashwood House, Kingswinford 87
Barnwood House Hospital 93
Bethel Hos. for Mental Diseases 89
Bishopstone House, Bedford 92
Buntingford House Retreat, Herts .. 95
Camberwell House, Peckham-road .. 89
Clarence Lodge, Clapham-park 88
Convalescent Home, Biggage 85
Coppice, The, Nottingham.... 93
Cotswold Sanatorium 91
Crooksbury Sanatorium, Surrey.... 93

ASYLUMS—(Continued).
Dalrymple House, Rickmansworth .. 92
Dartmoor Sanatorium 88
David Lewis Colony, Alderley Edge.. 89
Denton Jones' Sanatorium, Parkstone 88
Dexter, E. Twickenham 92
Doctor, Shambrook 92
Dr. Fasbleigh's Sanatorium, Darkmoor 17
East Anglican Sanatorium, Nayland.. 93
Fairford Retreat, Gloucestershire.... 92
Ferryton, Barnet 92
Flower House, Catford 91
Grove House, Church Stretton 93
Grove, The, Catton, Norwich 15
Hailey Open Air Sanatorium, Ingdon 91
Hayfield Lodge, Newton-le-Willows 93
High Shot House, Twickenham 92
Hitch, Mrs., Hollington 93
Home Sanatorium, Bournemouth .. 91
Home School for Children, Cheltenham 89
Invernaith Lodge Retreat, Colinsburgh 84
Lady Superintendent, Brighton 88
Lady Superintendent, Streatham 88
Lawson, Nordrach-on-Dee, Banchory 88
London Open-Air Sanatorium, Wokingham 87
Longcroft, Horsham 92
Lufkur Sanatorium, Portbury 89
Mater, Hove 93
Melbourne House, Leicester 93
Middleton Hall, Co Durham 93
Moat House, Tamworth 93
Moorcote Open-Air Sanatorium, Eversley 87
Near Crosby Sanatorium for Consumptive, Inebriate 91
Nordrach in Wales 87
Nordrach-upon-Mendip Sanatorium.. 86
Northlands Retreat, Wandsworth 89
Northwoods House, Winterbourne .. 94
Norwood Sanatorium 89
Ochil Hills Sanatorium, Kinross-shire 87
Overdale, Whitefield 92
Park House, Bargate-hill 18
Plas-yn-Dinas, Merionethshire 84
Plympton House, South Devon 93
Ros revor Open-Air Sanatorium, Warrenpoint 87
Shaftesbury House, Formby 94
Silver Heath 89
Springfield House Private Asylum, Bedford 92
St. Andrew's Hospital, Northampton 93
St. Luke's Hospital, S.C. 92
Stocker, Orange-street 92
Stone House, Canterbury 91
Stretton House, Church Stretton 93
Sunshine, Cwm Hospital 91
The Silver Birches, Epsom 93
Thundercliffe Grange, nr. Rotherham 18
Tower House, Leicester 93
Vale of Clwyd Sanatorium 95
Ver-o-la-vale 100
Warneford Asylum, Oxford 93
West Malling-place, Kent 94
Winchester House, Kingston-hill 94
Woolford House, Exeter 93

ASYLUMS—(Continued).
Wye House, Buxton 93
Wyke House, Isleworth 93
Wylie & Squire, Broadstairs.... 88
X. Thornton Heath 88
Yarrow Convalescent Home, Broadstairs 84

BATHS:—
Bad Nau 19
Matlock Bath 91
Matlock House Hydro, Matlock 89
Smedley's, Matlock 89

COMPANIONS:—
Medicus, Brixton.... 89

FINANCIAL, &c.:—
Birkbeck Bank 89
English & Scottish Law Life Office .. 84
Equitable Reversionary Interest Soc. 89

HOMES, &c., WANTED:—
No. 491, L.O., Strand.... 96

HOTELS:—
Carlton Court Hotel, New Milton 92
Montreux Hotel and Chalets, Belmont 91
Mount Peleria—
Grand Hotel Mont Peleria 91
Port Orotava—English Grand Hotel.. 91

HOUSE & ESTATE AGENTS:—
Agent Gloucester Gate 90
Bedford & Co., Kingsway-street 16
Frost-road, Walthamst w 87
No. 461, L.O., Strand.... 96
No. 462, L.O., Strand.... 96
No. 495, L.O., Strand.... 96
Owner, Bedford-park 87
Owner, Crossfield-road 91
Owner, Hornsey-lane 97
Pyne, Pyne & Howland, Charing Cross-road 96
Turner, Adelphi 95
CONSULTING-ROOMS:—
No. 495, L.O., Strand.... 96

LIFE & FIRE ASSURANCES:—
General Life Assurance Co. 89
National Provident Institution 89
Prudential 10

MEDICAL ACCOUNTANTS, &c.:—
Turner 97

MEDICAL AGENTS:—
Dr Ward Hall 85
Lee & Martin 16
London Medical Agency 89
Manchester Medical Agency 12
Manchester Medical, &c., Association 95
Medical Agency 89
Needes, Herbert 96
Needes, J. C. 96
Orridge 85

MEDICAL AGENTS—(Continued).
Peacock & Sadley 96
Scholastic, Clerical, &c., Assoc 94
Southern Medical Agency 95
Turner 15
Wilson & Son 13

MEDICAL SCHOOLS (LONDON):—
Cooke's School of Anatomy 79
West London Post-Graduate College.. 79

MEDICAL SCHOOLS (PROVINCIAL):—
University of Birmingham 78

NURSING INSTITUTES:—
Clapton Nursing Home 91
General Nursing Association 91
Hospital for Sick Children, Gt. Ormond-st. 92
Leeds Trained Nurses' Institution 91
London Nurses' Association 91
Male and Female Nurses' Assoc. 92
Male Nurses' Association 91
Male Nurses' Co-operation 91
Middlesex Hos Trained Nurses' Inst. 92
Mildmay Nursing Institute 92
Nurses' Co-operation, Portland-place 91
Queen Charlotte's Lying-in Hos 91
St. John's House 91
Temperance Male and Female Nurses' Co-operation 91
Temperance Male Nurses' Co-operation 91

OFFICIAL NOTICES:—
Central London Throat, &c., Hos. 79
Witham College, Kent 79
Epsom College 79
London School of Tropical Medicine 80
Mount Vernon Hospital for Consumption 79
Naval Medical Examination 80
New York Post-Graduate Medical School and Hospital 79
Royal College of Physicians of London 79
Royal Ear Hospital, Soho 79
Royal London Ophthalmic Hospital.. 79
Surgical Aid Society 79
University of Durham 79

PARTNERSHIPS & PRACTICES 97

RAILWAY & STEAMSHIP CO.'S:—
New Zealand Shipping Co. 89
Royal Mail Steam Packet Co.—Tours 96

SCHOOLS, PREPARATORY, &c.:—
Dirleton House School, St. Albans .. 79
Manchester Physical Training College 79

TUTORS & LECTURERS:—
Fehnke 90
Ede 90
Fellowships 80
Gooch 79, 80
Kerin 80
Lane & Pratt .. 80
Mc. pd. L.O. .. 10
No. 495, L.O. .. 10
Patterson 10
Van Praagh 80
Weymouth 79

(For Index to Trade and Miscellaneous Advertisements see page 4).

SMITH, ELDER & CO.'S PUBLICATIONS.

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CONTENTS:—

I. Remarks on some Diseases which may Present Misleading or Seemingly Unimportant Symptoms. By Sir Dyce Duckworth, M.D., LL.D.
II. Note on the Occurrence of Subcutaneous Fibroid Nodules in Gouty Persons. By Sir Dyce Duckworth, M.D., LL.D.
III. Pericarditis in Enteric Fever. By Norman Moore, M.D.
IV. A Case of Subacute Combined Degeneration of the Spinal Cord. By J. A. Ormerod, M.D.
V. A Case of Acute Pemphigus. By W. P. Herringham, M.D.
VI. Local Paralysis in Posterior Basic Meningitis. By W. Langdon Brown, M.D.
VII. The Early Sequelæ of Severe Faucial Diphtheria, and their Treatment. By G. C. Garratt, M.D.
VIII. A Case of Landry's Paralysis. By J. L. Maxwell, M.D. Lond.
IX. On Abscess of the Brain. A Thesis for the Degree of M.B. Cantab. By S. L. O. Young, M.B.
X. Four Cases of Gastro-Jejunostomy. By D'Arcy Power, F.R.C.S.
XI. On Congenital and Traumatic Cysts of the Brain and Meninges. By Louis Bathe Rawling, F.R.C.S.
XII. Two Cases of Extirpation of the Labyrinth. By C. Ernest West, F.R.C.S.
XIII. Tuberculosis of the Female Breast. By Sydney R. Scott, M.S., F.R.C.S.
XIV. Cases from Mr. Bruce Clarke's Wards. By L. Noon, B.C.
XV. Notes on a Case of Appendicitis, with Multiple Abscesses in the Peritoneal Cavity and Metastatic Abscesses in the Left Lung. By Alwyne T. Compton, F.R.C.S.
XVI. Notes on a Case of Operation for the Radical Cure of a Right Inguinal Hernia, followed by Acute Gangrenous Appendicitis. Second Operation on the Ninth Day. Recovery. By J. Finlay Alexander.

Proceedings of the Abernethian Society for the Session 1903-1904.—List of Specimens added to the Museum.—Books presented to the Library.—Summary of Scholarships and Prizes.—List of Prizemen.—Hospital Staff.—INDEX.

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INDEX—(CONTINUED).

TRADE AND MISCELLANEOUS ADVERTISEMENTS.

COVER.

PAGE

CHEMISTS & DRUGGISTS:—
Cook & Co.—
Skin Soaps ... ii

FOODS:—
Benger's Food, Ltd.—
Benger's Food ... iv
Hinchley's Diabetic Preparations ... iii
Fry's Malted Cocoa ... iii
Valentine's Meat Juice Co.—
Meat Juice ... iii
Van Abbott & Sons—Gluten Flour ... iii

AMBULANCES:—
St. John Ambulance—
Invalid Carriages ... 15
Wilson & Stockall—
Ambulances ... 14

BOTTLE MERCHANTS:—
Isaacs ... 77
Islington Glass Bottle Company ... 77
Kilner Brothers, Ltd. ... 12

CARRIAGES, MOTORS, &c.:—
Alford & Alder—
Winter and Summer Carriages ... 15
Armstrong—
Coachmen's and Grooms' Liveries ... 15
De Dion-Bouton, Ltd.—
Motor Carriages ... 15
Maythorn & Son—
Feilfordshire Buggy ... 15
Star Motor Agency—
Motor Cars ... 14
67, George-street, Portman-square—
Secondhand Carriages ... 15

CHEMISTS & DRUGGISTS:—
Allen & Hanburys—
Allenburys Throat Pastilles ... 39
Cod Liver Oil ... 40
Hypo-Hypophosphites ... 41
Asaroa & Asarua—
Hemaboloids ... 45
Angier Chemical Co.—
Angier's Emulsion ... 47
Anglo-American Pharmaceutical Co.—
Colchi-Sal ... 64
Betul-Oil ... 64
Antikamnia Chemical Co.—
Antikamnia Tablets ... 30
Battley's Liquors ... 66
Bayer Co.—
Aspirin ... 39
Mencinol ... 39
Salophen ... 39
Biogen Co.—Biogen & Dormogen ... 60
Brady & Martin—
Ergotinol ... 71
Brin's Oxygen Co.—Brin's Oxygen ... 69
British Anatoxine Manufacturing Co.—
Anthoxine ... 70
British Druggists—
Hypogan ... 71
Sirogan ... 71
Buchner, Schacht & Co.—
Sandow's Carbonated Acid Bath ... 69
Eff. Brom-Salt ... 69
Sandow's Artificial Mineral Water Salts ... 69
Bullock & Co.—
Pepsina Porci ... 69
Acid Glycerine of Pepsine ... 69
Burgoyne, Burbidges & Co.—
Salts ... 69
Collargol ... 69
Asoine ... 69
Antiseptic Cresé ... 69
Burroughs, Wellcome & Co.—
Tabloid Medicine Pocket Case ... 44

CHEMISTS—(Continued). PAGE
Burroughs, Wellcome & Co.—
Soloid Products ... 49
Tabloid Iron and Quinine Citrate ... 51
Hazeline ... 43
" Cream ... 43
" Snow ... 43
Kepler Solution ... 46
Christy & Co.—
Glyco-Thymoline ... 32
Glyco-Heroin ... 32
Lithiated Sorghum Comp. ... 61
Cumar & Son—
Nourry's Iodinated Wine ... 63
" Syrup ... 63
Cacodylate of Sodium (Clin) ... 63
Lecithine (Clin) ... 63
Denver Chemical Co.—
Antiphlogistine ... 20
Dinneford's Fluid Magnesia ... 73
Duncan, Flockhart & Co.—
Chloroform ... 28
Chloryl Anæsthetic ... 28
Evans Sons Lescher & Webb, Ltd.—
Alginoid Iron ... 26
Fairchild Bros. & Foster—
Pepsic Pepsin ... 26
Fellows—Syr. Hypophos. Co., Fellows ... 65
Giles, Schacht & Co.—
Schacht's Fluid Pepsine ... 26
Greeff & Co.—Kolése ... 64
Hewlett & Son—
Mist. Pepsinæ Co. c. Bismuthe ... 34
Liq. Santal Flav. c. Buchu et Cubebe ... 34
Hudson—Eumenthol Jujubes ... 69
Huggins—Cocoa Paper for Asthma ... 73
Kirby & Co.—
Purgen ... 64
Kreochyle Co.—
Kreoff Beco-Glycerine ... 66
Kühn & Co.—
Pepsin-Pinkler ... 69
Lambert Pharmacal Co.—
Listerine ... 21
Lamont, Corlins & Co.—
Hydrozone ... 70
Maltine Manufacturing Co.—
Malt ine with Cod Liver Oil ... 47
Meister Lucius & Brüning—
Isoform-Hoechst ... 28
Argonin ... 29
Supraren in ... 29
Pyramidon ... 29
Anæsthesin ... 29
Trigemin ... 29
Alamnol ... 53
Benzosol ... 33
Newbery & Sons—
Pulvis Jacobi Ver ... 70
Laglavin ... 70
Glycobenzoene-Heil ... 62
Borobenzoene-Heil ... 61
Parke, Davis & Co.—
Adrenalin Inhalant ... 31
Raimes & Co.—
Allingor's Nutrient Suppositories ... 73
Salamon & Co.—Furest Chloroform ... 70
Sanatogen Co.—Sanatogen ... 66
Savory & Moore—
Pancreatic Emulsion ... 28
Scott & Bowne—
Scott's Emulsion ... 67
Seltzogene Patent Charges Co.—
Sulphagna ... 70
Squire & Sons—
Terperoin Preparations ... 42
Glyphocal ... 42
Elixir Kanak ... 42
Peruangiobile ... 42
Tamar Indian Grilles ... 71
Vinolia Co., Ltd.—
Vinolia Household Soaps ... 13
Ward Manufacturing Co.—
Pills, Tablets, Capsules, &c. ... 69

CHEMISTS—(Continued). PAGE
Zimmermann, A. & M.—
Nafialan ... 69

FILTERS:—
Defries & Sons—Pasteur Filter ... 67

FOODS:—
Allen & Hanburys—
Allenburys Milk & Cereal Diet ... 39
Armour & Co.—
Glycerine Extract of Red Bone Marrow ... 35
Aylesbury Dairy Co.—
Humanised Milk ... 30
Bonthron & Co.—Gluten Bread, &c. ... 12
Brand & Co.—Essence of Beef ... 72
Burroughs, Wellcome & Co.—
Perfected Wyeth Beef Juice ... 49
Cadbury's Cocoa ... 54
Callier's Milk Chocolate ... 56
Callard & Co.—
New Diabetic Foods ... 73
Carnrick & Co.—
Liquid Peptonoids ... 48
Charles & Sons Nursery Milk ... 75
Cocoena & Co.—
Maggi's Essence ... 67
" Consomme ... 67
" Cross-Star Soups ... 67
Digestive Food Co.—
Digestive Pea Flour ... 75
Digestive Lentil Flour ... 75
Digestible Tea Syndicate, Ltd.—
Plasmon Tea ... 71
Fairchild Bros. & Foster—
Panopeptone ... 37
Fletcher, Fletcher & Co.—
Vibrona ... 35
Foods, Ltd.—
Mellin's Food ... 74
International Plasmon, Ltd.—
Plasmon ... 18
Maltos Co.—Maltos ... 10
Nestlé—Milo Food ... 54
Oxo ... 74
Rowntree's Elect Cocoa ... 72
Tibbles' Vi-Cocoa, Ltd.—Vi-Cocoa ... 14
Virol, Ltd.—Virol ... 23
Welford & Sons—
Humanised Milk ... 72
Asses' Milk ... 52

FURNITURE, &c.:—
Angus & Co.—Sectional Bookcase ... 99
Carter—Invalid Furniture ... 16
Ward—Invalid Chairs, &c. ... 16

HOSIERS, &c.:—
Cash—
Invalid's Nightdress ... 99
Washable Maternity Binder ... 99
Samuels—Shirts and Collars ... 77

MED. & SURG. APPLIANCES:—
Bailey & Son—
Abdominal Belts ... 76
Elastic Stockings ... 16
Balling's System of Inhalation ... 77
Bowring Hackiant Heat Co.—
Bowring Hackiant Heat and Light Treatment ... 13
Brust—Orthopædic Apparatus ... 76
Hawksley—
Knee Trusa ... 77
Hoefnicke Limited—
Hoefnicke's Appliance ... 17
Hooper & Co.—
Elastic Water or Air Beds ... 78
May, Roberts & Co.—
Absorbent Tissue ... 100
Cotton Wools ... 100
Gamgee Tissue ... 100
Lints ... 100
Waterproof Sheetings ... 100

MED. APPLIANCES—(Continued) PAGE
Millikin & Lawley—Osteology, &c. ... 12
Parke, Davis & Co.—
Glaseptic Nebuliser ... 31
Pope & Plante—
Elastic Stockings ... 15
Abdominal Supporting Belts ... 15
Robinson & Sons—Gauze Tissue ... 94
Wood—
Eureka Crêpe Velpeau Bandages ... 77

MINERAL WATERS:—
Burrow's Malvern Waters ... 70
Centrezeville Treville ... 70
Davis—Tarasp Water ... 71
Hogg & Son—Piperazine Water ... 71
Idris & Co.—Table Waters ... 72
Ingram & Royle, Ltd.—
Carlsbad Salts ... 60
Oppel & Co.—
Friedrichshall Mineral Water ... 74
Robinson's Concentrated Waters ... 70

MUSICAL INSTRUMENTS:—
Angelus Piano Player ... 91

PRINTERS & ENGRAVERS:—
Cooke & Co.—
Brass Name Plates and Lamps ... 10
Culleton—
Brass Door Plates ... 10
Heraldry, &c. ... 10

SANITARY APPLIANCES, &c.:—
British Lysoform Co., Ltd.—
Lysoform ... 61
Condy's Fluid ... 13
Defries & Sons—
Sanitas Disinfector ... 67
Dixon & Co.—
Hall's Di-tomac ... 63
Manlove, Alliott & Co.—
Steam Disinfectors ... 76
Sterilising Apparatus ... 76
Wright, Layman & Umney—
Liquor Carbonis Detergens ... 69

TAILORS, BOOTMAKERS, &c.:—
Emerson Shoe Store—
Emerson Boot ... 13

TYPEWRITING, &c.:—
Cambridge Typewriting Agency, Adelphi ... 80

VACCINE LYMPH:—
Assoc. for Pure Vaccine Lymph ... 19
Hime—Glycerinated Calf Vaccine ... 12
Jenner—Institute for Calf Lymph ... 12
Rebman—
Glycerinated Pure Calf Lymph ... 12
Reuter's Calf Lymph Establishment ... 12
Wyleys, Ltd.—Calf Lymph ... 12

WATCHMAKERS, &c.:—
Sesson—Doctor's English Watch ... 70

WINES, BEER, SPIRITS, &c.:—
Buss & Co.—
"G. B." Diabetic Whisky ... 73
Bishop & Sons—
Bottman's Fine Cognac ... 74
Brown & Park—
Fine Vintage Brandy ... 73
Buchanan—
Special Scotch Whisky ... 72
Dewar's Whisky ... 72
Gautier's Liebig Brandy ... 16
Hennessy's Three Star Brandy ... 16
Martell's Three Star Brandy ... 16

MISCELLANEOUS:—
Box 276, Strand—Furniture ... 80

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ABSTRACT OF

The Hunterian Lectures

ON

THE CHANGES PRODUCED BY INFLAMMATION IN THE CONJUNCTIVA.

Delivered before the Royal College of Surgeons of England on Feb. 27th and March 1st and 3rd, 1905,

BY M. STEPHEN MAYOU, F.R.C.S. ENG.,

CHIEF CLINICAL OPHTHALMIC ASSISTANT AT THE LONDON HOSPITAL AND AT THE ROYAL LONDON OPHTHALMIC HOSPITAL.

LECTURE I.

Delivered on Feb. 27th.

[Mr. Mayou commenced by stating that for the proper understanding of disease in an organ it was necessary to know the developmental origin and the anatomy, both macroscopic and microscopic, of the organ affected. He would therefore commence his lectures with an account of the development of the conjunctiva. He would then pass on to the histological changes which occur in inflammations. The result of his investigations had been to lead him to agree with A. Whitfield's opinion that the endothelial and perithelial cells played an important part in the production of mononuclear leucocytes and plasma cells.[1] As regards the conjunctiva he had come to a somewhat similar conclusion.]

Formerly there were two main theories with regard to the origin of the plasma cells; either (1) they were derived from the fixed connective tissue cell (Unna) or (2) from the mononuclear leucocytes; most English and Continental pathologists agree with this latter view. I shall endeavour to point out the importance of these cells as indicating by their degeneration the active site of a disease and also to show their distribution in the various forms of inflammation of the conjunctiva. Further, I shall endeavour to show the significance of follicular formations in the conjunctiva.

The conjunctiva is derived from the surface epiblast covering the fœtus, the first indication of its differentiation from that structure taking place about the eighth week of human fœtal life; the primary and secondary optic vesicles are well formed by that time, but the lens is not entirely separated from the embryonic cornea by the ingrowth of the iris. The sclera is just showing signs of differentiation from the surrounding mesoblast. A groove, surmounted by a fold, appears above and below the cornea, uniting first at the outer side and finally at the inner, where it becomes thrown into a thick vertical fold which subsequently forms the plica semilunaris (membrana nictitans of birds) which appears about the ninth week of fœtal life. At the limbus on the inner side a marked fold is found projecting forwards which after birth becomes flattened out. In vertical section the eyelid sulcus is seen to be produced by a direct folding of the surface epiblast, the ridges forming the first indication of the developing eyelid. In some forms of fish development is arrested at this stage. The two rudimentary eyelids thus formed grow rapidly forwards in contact with the globe and just before union takes place are thrown into a number of horizontal folds at their margin.

Directly the margins of the eyelids have come in contact with each other, which takes place at the tenth week of fœtal life (fœtus four and a half centimetres long), there is a proliferation of epithelium between the two surfaces out of all proportion to that in either the skin or the conjunctival surface. The lids become firmly united together and at the same time tightly stretched over the globe, which seems to assist materially in their development since in severe degrees of microphthalmos the eyelids are short and the conjunctival sac is ill-developed. If failure or incomplete union of the lids should take place from interposition of the amnion or other causes there would result a condition varying in degree from a mild congenital lagophthalmos (in which condition the upper lid fails to cover the globe because development after union takes place principally at its own expense) up to a complete absence of the lids with the formation of a skin-like conjunctiva. At this time the conjunctiva is a closed sac lined by a single layer of epiblast and although the surface epiblast then begins to thicken, that lining the conjunctival sac remains as a single layer until after the lids have separated, a fact which I do not think has been previously pointed out. To see if this rule is a general one throughout the animal kingdom I have examined the following animals in the fœtal state—the cat, the rat, the rabbit, and the snake[2]—and find it to hold good in all I have examined. The reptile shows so many points of interest in the arrangement of its conjunctiva that before going on I shall give a short account of it together with its development.

ARRANGEMENT AND DEVELOPMENT OF THE CONJUNCTIVA IN SNAKES.

The common grass snake was exclusively used for studying the development.

The snake when casting its skin becomes blind owing to a layer of keratin on the surface of the eyes becoming opaque before being shed. This layer is not derived from the surface of the cornea but from what I hope to be able to show is a membrana nictitans which divides the conjunctival sac into two portions. If the several varieties be examined it will be seen that the eyelids differ considerably in the extent to which they cover the globe; thus in the common viper the lids almost meet over its surface, whilst in the American grass snake there is only a groove. If a vertical section be made through the eye and eyelids the conjunctival sac is seen to be divided into two portions: an outer, lined with epithelium and covered by a thick layer of keratin, and an inner closed sac, lined with a single layer of epithelial cells; these cells are flattened in the region of the cornea but become cuboidal in the fornices. The cells are of the embryonic type; this is a point I wish to bring out, as I shall refer to it again when coming to the human conjunctiva. Stretching from one lid to the other is a membrane which is covered externally by a double layer of epithelial cells and a thick layer of keratin like the covering of the external sac and on its inner side by a single layer of epithelial cells like the inner sac; between these is a layer of mesoblast continuous with the mesoblast of the eyelids.

Coming now to the development of this membrane, a common grass snake's egg takes about 60 days to hatch. The eggs procured were said to have been extruded on July 10th. On the 12th they were put into an incubator at a temperature of 30° C. An egg opened on the 16th showed a well-marked primitive streak. On the 18th the primary and secondary optic vesicles were well formed; the cornea was present in contact with the amnion, the retinal and hæmoglobin pigments being the only ones present in the body; there was a small notch external to the cornea showing the commencement of the rudimentary eyelids. (The length of the fœtus in membranes was eight millimetres.) On July 20th a somewhat curved, horseshoe-shaped membrane with a whitish margin could be seen growing across the surface of the cornea from the inner and anterior end of the palpebral fissure. (The length of the fœtus in membranes was 11 millimetres.) Vertical section of the posterior or outer portion of the palpebral fissure showed the lids above and below but no membrana nictitans, whilst horizontal sections from the same embryo showed it growing from the inner side across the globe. This membrane as it grows across the cornea during fœtal life is opaque at its margin and semilunar in shape. Its blood-supply is derived from two vessels which arise on the inner side and run round its margins, anastomosing with each other at the outer side and sending branches inwards towards the centre of the lid; these vessels disappear after birth. The membrane is transparent until shortly before birth, when it becomes somewhat cloudy, probably through desquamation from the surface, similar to that occurring when the snake casts its skin. Thus it will be seen that the conjunctival sac of the snake is divided into two by a persistent membrana nictitans and that the inner sac is lined by a single layer of epithelium of an embryonic type, which persists as such throughout life.

The cat and the rabbit both show extremely well the process of separation of the eyelids which in these animals does

[1] A. Whitfield: Journal of Dermatology, January, 1904.

[2] The snakes were obtained from the Zoological Gardens, Regent's Park, by the courtesy of the curator, Mr. Beddard. Some nine specimens were examined.

not occur till after birth and is therefore easily studied, the epithelium lining their conjunctival sac remaining as a single layer until after separation has taken place.

THE MANNER AND DATE OF SEPARATION OF THE EYELIDS IN THE HUMAN FŒTUS.

In looking up the literature of this subject I was at once struck by the number of different dates given by various authors for the separation of the lids, varying from the seventh month till shortly before birth. When we remember that a certain number of living children are born at the seventh month and reflect that these children are not born with closed eyelids like the cat or dog we realise that there must be a fallacy somewhere. The age and length of the fœtuses examined were as follows:—

Length.	Approximate age.	Condition of lids.
24 c.m.	Fifth month.	Lids separated.
21½ c.m.	,, ,,	,, ,,
20 c.m.	,, ,,	,, ,,
11 c.m.	Fourth month.	Lids joined, separation commencing anteriorly, growing-out of eyelashes.
9 c.m.	,, ,,	,, ,,
7 c.m.	Third month.	Firmly united.
4½ c.m.	Tenth week.	Primary union just taking place.

The above fœtuses were examined both macro- and microscopically. The description of the condition of the lids and conjunctiva in the ten weeks' fœtus (four and a half centimetres) I have already given. A fœtus of the third month (seven centimetres) showed the eyelids firmly united together by epithelium, with downgrowth of the epithelium from the junction of the lids commencing to form the Meibomian glands and hair follicles, the former appearing rather before the latter. During the early part of the fourth month (fœtus nine and 11 centimetres) the eyelashes grow out from between the closed lids and materially assist in the separation of the anterior portion of the union, which is the first to yield, the uniformity of the curve of the lashes being produced by the impinging of the growing lash on the opposing eyelid.

I think that cases of congenital trichiasis[3] may be accounted for by irregularity or mal-union of the lids, allowing the lashes to grow out straight without impinging on the opposite eyelid and so altering the direction of the follicle as to produce non-uniformity of the curve. After separation of the anterior part of the junction of the lids there is a degeneration of the epithelial cells of the posterior parts of the union, better seen in the cat about the third day after birth than in the human embryo. Final separation takes place by degeneration of the epithelium in the mesial portion of the junction, which is therefore the last to yield.

It has already been seen in the snake that the portion of the conjunctival sac which is permanently closed is lined by a single layer of epithelium of embryonic character. In the cat (third day after birth) the epithelium over the surface of the bulbar conjunctiva remains as a single layer until separation of the lids has taken place (ninth day), so I think it may be taken that thickening of the bulbar conjunctiva is positive evidence of separation having taken place. This thickening of the conjunctival epithelium I found took place in fœtuses over 20 centimetres in length—viz., at the beginning of the fifth month, the thickening taking place first, and spreading from the epithelial bond of union between the eyelids. Another argument in favour of the thickening of the epithelium being due to the separation of the lids is the fact that when the lids have failed to unite, as occurs in cases of clefts of the lids or in cases where the lids are completely absent (cryptophthalmos), the epithelium is very much thickened, so much so that it resembles skin. Thus I think the comparative frequency of the so-called dermoid patches of the conjunctiva so often associated with deformity of the eyelids is explained. Further evidence that the lids have separated at the fifth month is found in the fact that the Meibomian glands are actively secreting at that date and it is possible to squeeze secretion from them; microscopically this secretion is made up of fatty material with a quantity of epithelial cells.

[3] Stephenson: Transactions of the Ophthalmological Society, vol. xiv.

DESCRIPTION OF THE CONJUNCTIVA AT BIRTH.

The following observations were based on the examination of three healthy fœtuses at full term in a good state of preservation. When the child is born the eyelids are tightly closed, the skin being thrown into numerous wrinkles and covered with a fatty material. The margins of the lids are usually in contact with each other, but occasionally the upper lid is found overlapping the lower.

The epithelium.—Over the lower part of the tarsus this is much thicker than it is in the adult conjunctiva, owing, no doubt, to its close proximity to the margins of the lids, in which thickening first begins. It is here some five cells in thickness and is the only situation in which it is thicker than in the adult, and, like the rest of the epithelium of the conjunctiva, there is an absence of any flattened epithelial cells on the surface, the cells being cuboidal in shape. On the anterior part of the retro-tarsal fold the epithelium is only from two to three cells in thickness, being much thinner than the adult epithelium in that region. That of the bulbar conjunctiva is again not so thick as that of the adult, but next to the epithelium covering the tarsus it is the thickest part of the epithelium of the conjunctiva at birth. In the fornices at the bottom of the folds the cells show signs of mucoid change to such an extent that in the three cases examined the basement membrane was completely bare in places and would have allowed a ready entrance of organisms to the subconjunctival tissues. The corneal epithelium is about three cells in thickness, but to compensate for this there is a great thickening of the substantia propria, both in comparison to the thickness of the sclera and to that of the adult cornea. The subconjunctival tissue in the region of the bulb contains a quantity of elastic fibres which are finer than those in the adult conjunctiva. There does not seem to be any elastic tissue in the sub-epithelial conjunctival tissue covering the tarsus.

In the fornices the subconjunctival tissue is very loose and rich in blood-vessels and lymphatic spaces but there is a complete absence of leucocytes which do not appear until after birth when the fornices become filled with mononuclear leucocytes and a few plasma cells which spread later to the subconjunctival tissue covering the tarsus. In other lymphoid tissue, such as the tonsil, mononuclear leucocytes are present for several weeks before birth and are evidently produced from the cells of those structures. In the conjunctiva, therefore, the lymphoid tissue is probably the result of irritation and is of new formation. This will be discussed in more detail when dealing with the histological changes in inflammatory affections of the subconjunctival tissue.

There is a small point in the anatomy of the fornix to which I wish to draw attention. At the extreme inner end of the upper fornix the loose lymphoid tissue ends in a triangular fold which can only be demonstrated by dividing the eyelids and turning them back; it is seen to be connected with the main fornix by a very narrow band. This is not an uncommon situation for polypoid tumour, which in the case I have examined consisted of lymphoid tissue covered by epithelium. Several of these tumours have been described under different nomenclature, such as supernumerary caruncle. They arise from this triangular piece of lymphoid tissue becoming œdematous and then being nipped between the globe and the eyelid. That this was the case was shown to me in the following way. In examining a number of stillborn children I found one in which during a difficult labour hæmorrhage had taken place into this small mass of loose tissue, with the formation of a red polypoid mass which protruded from between the eyelids; on section it simply consisted of a mass of blood-clot covered by epithelium.

The glands opening on to the surface of the conjunctiva, with the exception of the mucous glands, seem to be inactive. The secretion of tears from the lacrymal gland does not take place until some time after birth. There are no glands of Henle present at the time of birth, these being formed subsequently as the result of irritation.

THE HISTOLOGICAL CHANGES IN THE CONJUNCTIVA AS THE RESULT OF INFLAMMATION.

The epithelium.—The changes in the epithelium depend on whether it is kept moist by the lacrymal secretion or whether it is allowed to become dry. If moist the cells proliferate and undergo greatly increased mucoid changes, being cast off in large numbers in the discharge. The exudation into the subconjunctival tissue causes the surface epithelium to be

thrown into folds between papillary formations so that two epithelial surfaces lie in contact with each other, and it is the cells of these surfaces which show the most extensive mucoid change, commencing at the bottom of the folds, causing some irregularity of the basement membrane and giving the appearance of new gland formation. The glands of Henle are of this type, the regularity of their formation along the upper margin of the tarsus being due to this being the situation in which the fixed palpebral conjunctiva joins the loose conjunctiva of the fornix, where folding is more liable to take place; a large gland of this type is often seen at the inner end of the tarsus (E. T. Collins).[4]

Although this is perhaps the most common way in which the so-called new glands of the conjunctiva are formed there may be observed near the junction of the moist and dry epithelium a somewhat different modification, which occurs in conditions due to exposure and to chronic inflammation, such as ectropion, secondary xerosis, and papillomata of the conjunctiva which have been exposed in the palpebral fissure. As the result of this exposure the epithelium becomes thickened and dips down into the subepithelial tissue in the form of papillæ. Mucoid degeneration of the epithelial cells in the centre of these papillæ takes place with the formation of a flask-shaped mucous gland.

The openings of these new mucous glands are often occluded by epithelial débris, with the result that the lower end becomes distended and forms a cyst. These cysts on the palpebral conjunctiva are extremely common and one conjunctiva may contain many thousands of them. They are lined by more or less flattened epithelium three or four cells deep and contain epithelial débris which is sometimes calcified; on the bulbar conjunctiva they are comparatively rare but when they occur they are usually single and appear as transparent cysts containing clear fluid; they are lined by epithelium having many tuft-like processes, the cells of which are undergoing mucoid change and supply the fluid for the interior of the cyst.

If the epithelium be dry, as in cases of ectropion, the cells proliferating still remain attached to the underlying epithelium and undergo a process of keratinisation with the formation of keratin, keratohyalin, and prickle cells. The basement membrane becomes irregular and processes of epithelium dip down into the subconjunctival tissue, forming papillæ. In fact, the epithelium of the conjunctiva which is exposed resembles very closely in structure the true skin, with the exception of the absence of glands, hair follicles, &c.

Of great interest is the fact that when again moistened, as after an ectropion operation, the epithelium goes back to resemble macroscopically its former state, probably in consequence of softening of the superficial layers, with subsequent mucoid change in the deeper layers. From this it seems that the presence of lacrymal fluid is necessary to the formation of mucin by the epithelial cells. As the condition known as xerosis is due to this drying of the epithelium it will be described here.

Xerosis of the conjunctiva.—Xerosis is usually described as divided into epithelial or primary xerosis and essential shrinking of the conjunctiva or secondary xerosis. Pathologically the changes in the epithelium may be looked on as identical, except that those in the essential shrinking form are much more marked and are characterised by the formation of papillæ. Both conditions are due to drying of the epithelium owing to the absence of lacrymal secretion. In epithelial xerosis the lacrymal secretion is deficient owing to general malnutrition, whilst in the essential shrinking form the deficiency is due to chronic inflammation of the subconjunctival tissue, which contracts around the orifices of the lacrymal ducts, or possibly in some cases to primary degeneration of the gland. As a result of the deficiency of lacrymal secretion the epithelial cells seem unable to form mucin, as in ectropion; this fact and the changes resulting from it will be shown in greater detail immediately while describing the two forms of xerosis.

The primary form of epithelial xerosis.—In a paper read before the Ophthalmological Society[5] last year I gave a detailed account of six cases of this disease which I had had the opportunity of examining both clinicallly and histologically. The chief conclusions arrived at were:—1. That the minute bubbles seen on the surface of the plaques were due to the beaten-up Meibomian secretion. 2. That the xerosis bacillus was simply a saprophyte growing in the Meibomian secretion similar to the smegma bacillus growing in the preputial secretion and was not found in the tissue of the conjunctiva. 3. That the change in the epithelium was one of keratinisation, prickle cells, keratohyalin granules, and keratin being found in it. 4. That as a result of keratinisation and absence of mucoid change in the cell the surface tension of the conjunctiva was raised and therefore the lacrymal secretion did not moisten the surface but allowed the fatty Meibomian secretion containing the so-called xerosis bacilli to adhere.

The secondary form of xerosis or essential shrinking of the conjunctiva.—It is extremely doubtful if this trouble ever occurs as a primary disease but is always secondary to some form of chronic inflammation which at the time that the disease appears may not be active—as, for instance, in the case of pemphigus when quiescent.[6] Besides pemphigus it follows trachoma, lupus, burns, and cicatrices of the conjunctiva—in fact, any disease leading to drying of the conjunctiva, either by direct invasion of the lacrymal gland or by blocking of its ducts from cicatricial contraction. The change in the epithelium is similar to that previously described in epithelial xerosis but, in addition, papillæ of epithelium are formed by the downward growth of the epithelium into the underlying tissue. A case of this kind has been recorded by E. Treacher Collins,[7] which showed papillæ similar to those formed after the exposure of the epithelium in ectropion. In a case of lupus associated with essential shrinking I found similar changes in the epithelium.

The condition of the underlying subconjunctival tissue depends on the cause of the disease. In trachoma the trachomatous follicle may be present. In lupus typical giant-celled systems with epithelioid cells, &c., are found; in pemphigus, fibrous tissue. The plaques seem especially to pick out the more scarred portions of the conjunctiva. In three cases following on trachoma which I have had the opportunity of examining the changes in the epithelium were exactly similar to those described under epithelial xerosis with the exception that the basement membrane in one case was extremely thick, the keratinised layer being also very thick. Adherent to the surface was a definite membrane formed of Meibomian secretion and epithelial débris. In one case the whole lower palpebral conjunctiva was covered with this membrane which was very adherent and when scraped off re-formed in a few days. To this class I believe belong some of the cases classed as membranous conjunctivitis with persistent membranes.[8]

Before passing to the description of the diseases of the subconjunctival tissue it is necessary to describe in more detail the character of the cells found in the subepithelial layer of the normal conjunctiva.

Description of the cells forming the subepithelial layer.—These consist of three varieties: (1) those of hæmic origin; (2) those derived from the connective tissue; and (3) those of uncertain origin.

CELLS OF HÆMIC ORIGIN.

[The staining reaction and character of the polynuclear leucocytes (neutrophiles) were then described.]

Spider cells.—Spider cells are cells of curious branching shapes which are in reality polynuclear leucocytes fixed in the process of amœboid movement. That this is their origin seems evident because: (1) they are found principally at the edges of sections where immediate fixation of the tissue would result when placed in the fixing agent; (2) when examined carefully their elongated nucleus can be made out; (3) they are found principally in sections of acute inflammatory processes where polynuclear cells are seen; (4) if the tissue is not fixed rapidly these cells are not seen to nearly the same extent; and (5) they are found especially in the denser tissue where they cannot assume their rounded shape.

[The character and origin of the poly-eosinophile and basophile were then discussed.]

Connective tissue cells.—Connective tissue cells in the conjunctiva are of two types: those of the (*a*) *deeper layer*, which are elongated and of a wavy outline and arranged parallel to the surface. With Pappenheim's method the nucleus stains pale blue, with the nucleolus staining bright

[4] Private communication.

[5] Transactions of the Ophthalmological Society, 1904.

[6] W. Lang, A. Critchett, and H. Juler: Transactions of the Ophthalmological Society, 1896.

[7] Transactions of the Ophthalmological Society, vol. x., 1890, p. 62.

[8] S. Morton and E. T. Collins: Transactions of the Ophthalmological Society.

red. The cytoplasmic tails also stain pale red. In this layer of the normal conjunctiva there are, comparatively speaking, no other cells but these, except perhaps an occasional plasma cell or leucocyte. (*b*) In the *superficial layer* the cells become of a much larger type and stain more darkly. Their shape is oval and the protoplasm is better marked. The nucleus and protoplasm stain blue, with a bright red nucleolus. They have often no tails or only very small ones.

The endothelial and perithelial cells of the blood-vessels are flattened in the capillaries of the superficial layers of the connective tissue in the normal conjunctiva. They stain dark green, like some of the connective tissue cells, with red nuclei. Directly any proliferation takes place they become larger and more rounded in shape, either bulging into the lumen of the blood-vessel or protruding externally. Their cytoplasm takes up the pyronine of the Pappenheim stain much more readily. They migrate into the surrounding tissue undergoing mitosis and when in that stage are indistinguishable from a plasma cell from which I believe this cell is derived. Against this it must be remembered, as has been pointed out by Whitfield, that there is no distinctive stain for plasma cells and that any young cell takes on a basic staining reaction and that therefore the recognition of a plasma cell also depends on the characteristic appearance of its nucleus which is destroyed by the mitosis taking place. But this point, I think, shows the possibility of the formation of a plasma cell from the endothelium or perithelium of vessels. These round, darkly staining, migrating endothelial cells seem to be identical with the cells called clasmatocyte by Ranvier and Marchand, which name therefore I shall adopt in speaking of them. The endothelial cells are also strongly phagocytic and often contain cell inclusions.

Cells of doubtful origin.—Lymphocytes are divided into large and small, the large cell being the smaller cell in a more highly developed state. Their nucleus stains dark blue with Pappenheim's method whilst the cytoplasm stains pale red. They are formed in the follicles of the lymphatic glands, probably from their endothelial lining, and from there are carried in small numbers into the blood stream, but, unlike the polynuclear leucocytes, they are not increased in the blood in inflammatory conditions (absence of chemiotaxis), although enormous numbers are found at the site of inflammation, so that they must be produced locally by rapid division of the few cells brought by the blood stream as is held by some observers or else from the endothelium of the part which, I think, is most probable.

The relation of the large mononuclear leucocyte to the lymphocyte is at present doubtful. But since they are found together in all situations in which they occur and the staining reaction of their cytoplasm being the same, although the nucleus is of a slightly different shape, I think that they probably belong to the same generic type. The large mononuclear leucocyte is very difficult to recognise in tissue, it being confused, on the one hand, with the clasmatocyte and, on the other, with the large lymphocyte. Even in smear preparations of the fluid taken from serous cavities it is often difficult to distinguish between the wandering endothelial cells and the mononuclear leucocyte, although this difficulty is not admitted by some of the authorities. It is therefore obvious that its recognition in the tissue is so much the more difficult. It is admitted by all pathologists that the lymphocytes and the large mononuclear cells are intimately related to the plasma cell and are always found together, although one may be in excess.

Plasma cells.—Of all the cells found in the body perhaps none has given rise to so much discussion with regard to its origin as the plasma cell. Unna, who brought this cell into so much prominence, holds that it is derived from the connective tissue. Other observers say that it is derived directly or indirectly from the lymphocytes. Although the plasma cell has perhaps been given undue prominence it is without doubt one of the most important cells in conjunctival inflammation. It is found normally in small numbers in the conjunctiva beneath the epithelium, and its numbers are greatly increased in all inflammatory affections, especially of the more chronic type, such as trachoma. Its situation when present in large numbers is chiefly around the vessels and hence its position in the superficial layers of the subepithelial tissue. It seems to be slightly amœboid but not nearly to the same extent as the polynuclear leucocytes. When stained by Pappenheim's method the cytoplasm stains a uniform dark red without granules, whilst the nucleus stains dark blue and is very granular, containing a nucleolus which stains red. There are always to be found cells which pass in staining reaction into the lymphocytes, on the one hand, to which they are very closely allied, and into the endothelial or perithelial cells on the other.

In addition to the above cells which are found in normal conjunctivæ there are two types of cells which are formed only in inflammatory conditions.

Epithelioid cells.—These cells are found in trachoma, tubercle, leprosy, syphilis, &c., and are arranged around the foci of the disease. Outside them there is always a layer of mononuclear leucocytes from which they are most probably derived by the action of the toxins on the mononuclear leucocytes. In structure they are intermediate between the wandering endothelial cells (clasmatocytes) and the large lymphocytes.

Giant cells.—Giant cells in the conjunctiva are of two types: 1. The chorioplaques, which are derived from the plasma cells, most probably by incomplete division of the cytoplasm. These cells are found in all inflammatory conditions of the conjunctiva. 2. Giant cells proper. The giant cells proper are always more or less rounded in the conjunctiva, owing to the laxity of the tissue and are derived from the endothelial cells by division of the nuclei, with imperfect division of the protoplasm. These cells are probably due to the action of the toxins producing cell monstrosities. They occur frequently in all chronic inflammatory conditions of the conjunctiva around foreign bodies, &c., the conjunctiva having a great proclivity to form this cell. Like the endothelial cells they are also phagocytic. These two types of giant cells stand in the same relation to one another as the endothelial and plasma cells from which they are derived.

The Erasmus Wilson Lectures

ON

PERITONITIS, A BACTERIOLOGICAL STUDY.

Delivered before the Royal College of Surgeons of England on Feb. 20th, 22nd, and 24th, 1905,

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LECTURE II.[1]

Delivered on Feb. 22nd.

THE BACTERIOLOGY OF APPENDICITIS.

MR. PRESIDENT AND GENTLEMEN,—This subject has been investigated by numerous observers but the most important communications are those by Tavel and Lanz in 1893 and 1904. The valuable contribution to the bacteriology of this subject which they made in 1893 has formed the basis upon which most of the work of the present day rests. It is most unfortunate, however, that so much time has been given to the bacteriology of appendix abscesses as it was hardly probable that the actual cause of appendicitis would be found by examining the contents of an offensive abscess cavity. There is no doubt that the chief interest in this subject centres around the *colon bacillus*. At one time it was thought that this was the most important organism in the etiology of peritonitis, whether due to appendicitis or otherwise. Other observers adopted an entirely different view—namely, that the colon bacillus is an organism which is very easy to cultivate and grows very rapidly and, therefore, the more delicate but more virulent

[1] Lecture I. was published in THE LANCET of Feb. 25th, 1905, p. 473.

organisms are never isolated. This idea has become widely popular and is the view which is generally accepted at the present day. In 1898 Veillon and Zuber announced that they had sufficient evidence to show that certain anaerobic organisms play the most important part in the bacteriology of appendicitis. Tavel and Lanz in their latest communication also give support to the views of Veillon and Zuber. Hewetson published a preliminary paper on the bacteriology of peritonitis and failed to find any evidence to show that anaerobic organisms were of any importance in appendicitis. It has already been stated that many people hold that the colon bacillus outgrows the more delicate micro-organisms which are most concerned in the bacteriology of appendicitis. It is the streptococcus pyogenes, the pneumococcus, and "staphylococci" which are supposed to be most easily outgrown by the bacillus coli.

The relation of the streptococcus pyogenes to appendicitis.—Those who have devoted time to the study of this subject must have met with cases which were due to this coccus but no one has been able to do more than suggest that the streptococcus pyogenes is a common organism in this disease. It is true that some of the older writers considered that almost every case of peritonitis was due to the streptococcus pyogenes but a complete bacteriological investigation was seldom made and it is extremely doubtful if there was sufficient evidence to support this idea. It is impossible to be certain of the nature of some of the micro-organisms which have been described in cases of appendicitis as "streptococci," because this does not by any means imply that the organism in question was the streptococcus pyogenes. In all our cases we have made every effort to prove the nature of the organism which we were investigating. Cover-slip preparations and aerobic and anaerobic cultures of the peritoneal exudate were made in the large proportion of cases. In every instance in which we found chains of cocci in film preparations of the pus or peritoneal fluid we also grew the organism on artificial media. It can therefore be said that if there was no evidence of the streptococcus pyogenes by any of the methods which we employed it was extremely unlikely that the organism was present.

E. M. Corner appears to be of the same opinion as Harvey Cushing, and many others, who hold that the streptococcus is usually lost in artificial cultures because, he says, "although that (streptococcus) is one of the most widely distributed of organisms it is very easily killed and lost in mixed cultures and may literally vanish before a member of the colon group." It is hardly probable, however, that we should have failed to find a streptococcus in either the film preparations of the pus or in the various cultures employed in each case. Experience does not teach us that the streptococcus pyogenes dies out or cannot be isolated in the presence of the colon bacillus. It is true that in some cases of appendix abscess cocci have been present in cover-slip preparations of the pus, when the organisms have not been cultivated. We do not attach any importance to this fact as the pus in these abscesses may contain numerous micro-organisms which are never cultivated, in fact, the pus in these abscesses sometimes appears to contain enormous numbers of micro-organisms of every shape and size, because we are merely examining the contents of the intestine. If, however, diffuse peritonitis supervenes on a case of appendix abscess there is never any difficulty in isolating the micro-organisms which are in the peritoneal cavity, provided, of course, that the bowel contents are not free in the general cavity. If this occurs we have an exactly similar condition to which we have already referred. There is not a single instance among our cases in which the streptococcus pyogenes was obtained from the peritoneal cavity in acute diffuse non-perforative peritonitis due to appendicitis. If the streptococcus pyogenes is the important organism in appendicitis which Cushing, Corner, and others would have us believe, then we ought to have found it in some of the instances of this variety of peritonitis, which we have not been able to do. Here is the direct proof which has long been wanted and it shows that the streptococcus pyogenes is seldom present in the peritoneal exudate in appendicitis. In conclusion, we would like to point out still further that in those cases of peritonitis in which the streptococcus pyogenes is found in the peritoneal cavity the prognosis is practically hopeless. If this organism were, therefore, frequently present in the peritoneal exudate in appendicitis the mortality would be very much higher than it is at present.

The pneumococcus.—Barbacci, Kregius, and others have stated that they considered that the pneumococcus was an important organism in the bacteriology of perityphlitis, while J. H. Bryant has offered the suggestion that the pneumococcus might possibly be found to be a very important organism in this disease, if only a more careful search were made. J. Eyre has found the pneumococcus quite recently in the interior of the appendix from a case of acute appendicitis. Veillon and Zuber and others have obtained a pure culture of the pneumococcus from the peritoneal exudate in cases of appendicitis. In one of our instances of appendix abscess we isolated the pneumococcus with the colon bacillus. This is the only case in which we cultivated the pneumococcus either from the pus in the appendix abscess or in the peritoneal exudate in peritonitis associated with appendicitis. There is little doubt that if the pneumococcus was the important organism in appendicitis which it has incorrectly been assumed to be we should have obtained pure cultures of the organism from the peritoneal exudate in some of our cases quite apart from the presence of the coccus in a localised abscess. The usual tendency of the pneumococcus is to produce diffuse peritonitis without any of the changes which are met with in perforative peritonitis. In the case of appendicitis described by Veillon and Zuber there was a large quantity of greenish-white, thick, non-offensive pus present in the peritoneal cavity. We have not seen a single example of appendicitis of this nature.

The pathogenic staphylococci.—Tavel and Lanz were the first to demonstrate clearly that the pathogenic cocci might be the cause of "perityphlitis." It is, however, to Corner that the credit is due of first pointing out their great importance in this disease. In appendicitis, he says, "it seems not improbable that the origin of the acute cases of appendicitis lies with the septic organisms, which injure the tissues and so give the colon bacilli their opportunities." We read throughout the literature of appendicitis and also of peritonitis from other causes the expression "staphylococci" used in the very widest sense. It should not be necessary to have to mention that it is impossible to obtain any information from such a statement as "staphylococci were present." If all staphylococci were of the same pathogenicity perhaps such a loose terminology might be of little moment, but this is not so. The pathogenic properties of the staphylococcus pyogenes aureus are infinitely greater than those of any of the other staphylococci and even the white staphylococci show all grades of pathogenic virulence. It is unnecessary to produce any further proof to show how incorrect it is to describe various micro-organisms in this manner.

We quite agree with Corner that the "staphylococci" play the most important part in the bacteriology of appendicitis. It has already been shown that the white staphylococci are the most important organisms in many other varieties of peritonitis and we have evidence to show that the same is true of appendicitis. The staphylococcus pyogenes aureus appears to be an organism of much virulence in peritonitis and is thus in direct contrast to the white staphylococcus. There is, however, a still further point to remember, that all cultures of the staphylococcus pyogenes aureus do not react in the same manner, as some are very much more virulent than others. It will also be found that a typical culture of the staphylococcus pyogenes aureus may lose all its chromogenic properties when it is subcultured for the first time and Dr. W. Dowson has observed the opposite effect. We have found that the chromogenic properties of this organism and the degree of pathogenicity increase in about the same ratio. There is one fact which appears to be quite certain, that there are many intermediate varieties of staphylococci between the white and the golden coccus.

The results of our experiments with the various white staphylococci obtained from the peritoneal exudate in all cases of peritonitis have been described elsewhere. Although various strains of this coccus were injected into the peritoneal cavity of numerous guinea-pigs we failed to produce suppurative peritonitis in a single instance, and this is exactly what is found to occur in the human peritoneum. It is for this reason that if the white staphylococcus has been isolated from the peritoneal exudate in peritonitis it has usually been considered to be due to "contamination," or that the coccus at least has had an epithelial origin and has had nothing whatever to do with the bacteriology of peritonitis. We, however, have good

reason to believe that this view is incorrect. We have found the white staphylococcus in almost every variety of peritonitis; it is by far the most common organism met with in the peritoneal exudate at a distance from the site of origin of the acute lesion and is frequently found in the peritoneal cavity in "the interval cases" of appendicitis. The important bearing which it is found to have on the prognosis of a case of peritonitis, when present in the peritoneal exudate alone or some time previously to the arrival of the colon bacillus, cannot be over-estimated. It does not appear to have any influence in the prognosis of those cases which are due to the streptococcus pyogenes or bacillus pyocyaneus.

We have obtained exactly similar results experimentally. If we injected the white staphylococcus into the peritoneal cavity of a guinea-pig together with the colon bacillus the coccus was found to have effect in preserving the life of the animal in only a few instances. If, however, we injected the coccus into the peritoneum some 20 hours previously to the colon bacillus most striking results were obtained. The guinea-pig which had been inoculated in this way either recovered or lived for several days, finally dying from some cause outside the peritoneal cavity, while control animals inoculated with the same strain of the colon bacillus, the same dose, and in the same manner, died within 24 hours. It is impossible to lay too much stress on these important observations which not only show that this coccus is of the utmost significance in peritonitis but that it has an entirely opposite effect to that which was expected, in fact, we have another illustration of the great service which micro-organisms may render to man and to animals.

We next proceeded to ascertain the action of this white coccus in cases of peritonitis. We used the guinea-pig for this purpose, as we had used it for all our other experiments. We injected definite quantities of a culture of the staphylococcus albus obtained from the peritoneal exudate in a case of appendicitis into the peritoneal cavity of guinea-pigs and examined the exudate at regular intervals. This fluid from the guinea-pigs' peritoneum, which had been injected 15 minutes, one hour, two hours, and 24 hours respectively, was carefully examined. These results are fully described hereafter but it is sufficient to state here that this coccus caused a very large number of leucocytes to appear in the peritoneal cavity of these animals, but while the injections of the colon bacillus carried out in an exactly similar manner also produced similar results the phagocytes were degenerated within one hour from the time of inoculation in the latter case but appeared to be perfectly healthy at the end of 24 hours after injecting the white staphylococcus. There was also much more peritoneal exudate after injecting the coccus than the bacillus. From these data it will be seen that the chief results which arise from injecting the white coccus into the peritoneal cavity of animals are the production of an extensive phagocytosis and also, although we made no attempt to prove this, a selective action of the body fluids. If the colon bacillus and the staphylococcus albus are injected into the peritoneal cavity of an animal at one and the same time it is found that the phagocytes are degenerated just as if the bacillus was injected alone.

The staphylococcus albus, when present in the peritoneal cavity in peritonitis, has, therefore, a definite function to perform and is not a "mere skin contamination" as some would have us believe. The fact that a patient's serum has a marked agglutinative action towards this coccus isolated from the peritoneal cavity in some of these cases of appendicitis is still further proof that the white staphylococcus bears an important relation to peritonitis.

Professor Welch delivered an address before the Congress of the American Physicians and Surgeons in 1892, entitled "Conditions underlying the Infection of Wounds." It was at this address that Professor Welch first drew attention to a white staphylococcus—the staphylococcus epidermidis albus. He directed our attention to the work of Bumm, Garré, Waterhouse, and others who have shown that "large numbers of the pyogenic cocci can be injected into human tissues without effect." These observations are of very great importance in the light of recent work. We have shown similar results from our experiments but with some important distinctions. It is true that there was "no effect" to the naked eye unless a very careful examination was made of the tissues of the inoculated animal or human being, but if an examination of the tissues is made we find that a very decided effect has been produced. Professor Welch clearly shows in his lecture that the white staphylococcus plays a very important part in the healing of an aseptic wound, and still further he refers to a case of peritonitis in which this coccus was found to play an important part. In a fatal case of "hystero-myomectomy" a volvulus of the ileum was found at the necropsy. There was a fibrino-purulent peritonitis present corresponding to the peritoneum covering the ileum, and a pure culture of the white coccus was obtained from the inflamed peritoneum. In concluding his excellent paper Professor Welch expressed the opinion that the white staphylococcus which is found so frequently in aseptic wounds, in stitch abscesses, and in the skin is an attenuated variety of the staphylococcus albus. We have already given our opinion as to whether we consider the white coccus which we have found with such regularity in peritonitis is the same organism as the staphylococcus epidermidis albus of Welch. We should mention here, however, that a stitch abscess is very seldom seen in the wards of St. Thomas's Hospital, although the white coccus has been so frequently isolated from the peritoneal cavity in peritonitis.

Anaerobic micro-organisms and their relation to appendicitis.—Veillon and Zuber published a paper in 1898 on the bacteriological findings of 22 cases of appendicitis. They drew attention to the importance of certain anaerobic organisms which they considered to be the most important organisms concerned in the bacteriology of appendicitis. They described altogether six micro-organisms—namely, the bacillus fragilis, bacillus ramosus, bacillus perfringens, bacillus fusiformis, bacillus furcosus, and the staphylococcus parvulus. All these organisms were found to be strict anaerobes, pathogenic to animals, and constantly present in the pus of appendix abscesses and in the general peritoneal cavity in cases of peritonitis. These observers considered that gangrene of the appendix and the offensive odour of the pus in appendix abscesses were due to these organisms and their toxins gave rise to the toxæmia which was the cause of death in appendicitis. This important communication produced a considerable amount of discussion and many considered that much of the previous work on appendicitis was valueless owing to the investigations of Veillon and Zuber. Tavel and Lanz in their latest communication on the bacteriology of appendicitis appear to have come to a somewhat similar conclusion. They place considerable importance on the presence of the bacillus pseudo-tetanus which is the same organism as the bacillus fragilis of Veillon and Zuber and also to a class of anaerobic bacilli which they describe as the bacilli of malignant œdema. We can state at the outset that we entirely disagree with the results of the investigations to which we have just referred. We employed strict anaerobic precautions in a very large percentage of the cases of appendicitis which we have examined and also in other varieties of peritonitis but failed to find these anaerobic organisms except in one instance. This was an example of appendix abscess in which the appendix was found to be gangrenous. The bacillus coli, a streptococcus, and the bacillus aerogenes capsulatus of Welch were present in the abscess. This anaerobic bacillus was obtained in pure culture from the surface of agar plates incubated under strict anaerobic precautions in Bulloch's jar. The bacillus produced extensive bloody emphysematous œdema when inoculated into the subcutaneous tissues of a guinea-pig and the emphysematous œdema spread very rapidly through the entire subcutaneous tissues of the animal and produced death in 24 hours. The organism was present in pure culture in the subcutaneous tissues of the animal. When it was injected into the vein of a rabbit and the animal was killed two minutes later and then placed in the incubator at 22° C. for 24 hours, certain changes were found which are specifically characteristic of this bacillus. The rabbit was found to be about twice the original size, the eyes were protruding from the animal's head, and there were general subcutaneous emphysema, foaming viscera, free gas in the blood, and emboli of bacilli throughout the various internal organs. Professor Welch considers that the organism is capsulated but we have always failed to demonstrate a capsule to the bacilli obtained directly from the tissues. This bacillus is described by Veillon and Zuber as the bacillus perfringens and is classified as one of the bacilli of malignant œdema by Tavel and Lanz. It is most unfortunate that these investigators should have adopted this classification, as Professor Welch has proved beyond question that the important organism in so-called malignant œdema or emphysematous grangrene is the bacillus aerogenes capsulatus, an entirely different bacillus from the bacillus of

malignant œdema, which was considered on the continent to be the cause of emphysematous gangrene until Professor Welch published his important communication. We have dealt with this point more fully in a paper recently brought before the Pathological Society of London on Emphysematous Gangrene of the Extremities.

The case from which we isolated Welch's bacillus made an excellent recovery. The weakest point in the paper by Veillon and Zuber, which appears to have escaped attention, is that if an organism such as the bacillus aerogenes capsulatus was frequently present in the peritoneal cavity in cases of appendicitis, as they have stated, emphysematous gangrene of the bowel should be a common lesion instead of an interesting curiosity in pathology, the same condition should be found to occur in the abdominal wall, which is not so, and foaming viscera should be frequently seen at the necropsies on cases of appendicitis, instead of which there has only been one instance of this condition in the post-mortem records of St. Thomas's Hospital for 1904. These few points and our own investigations on the bacteriology of appendicitis are sufficient to show that the work of Veillon and Zuber is only of interest owing to the exceptional results which they obtained. Hewetson, in the communication to which we have already referred, has also failed to confirm the work of Veillon and Zuber.

In almost every case of appendicitis large numbers of cocci, bacilli, and spirilla are present in the film preparations of the appendix abscess which are not cultivated; the contents of these abscesses are simply the intestinal flora in a great many instances.

Bacillus pyocyaneus.—It was originally considered by Koch that this bacillus was non-pathogenic. We now know that it may be extremely pathogenic to man and is often one of the most virulent of all known micro-organisms to the small laboratory animals. Cultures of this bacillus do, however, vary considerably in their pathogenic properties. The only question which we wish to discuss here is the relation of this organism to peritonitis. It appears to be extremely virulent when present in the human peritoneal cavity. It does not produce the green pus in the peritoneum such as is often seen in a local abscess. In fact, one is led to believe that virulent cultures of the bacillus which kill patients in a few days do not usually produce any chromogenic staining of the pus although the bacillus may produce large quantities of pigment when grown on artificial media. We have never yet seen green pus in the peritoneal cavity of man or animals even after exposure to the air for some minutes. We consider that the bacillus pyocyaneus will in the large majority of cases cause death when present in the peritoneal cavity and is only less virulent than the streptococcus pyogenes in the fact that it takes a little longer to cause death.

The bacillus coli and its relation to the cause of appendicitis.—In every variety of appendicitis which we have studied the colon bacillus is the most important pathogenic organism in a large proportion of the cases. In nearly every instance, however, we have found more than one strain of this bacillus to be present—either in the abscess, peritoneal exudate, or elsewhere. This fact is very important, as the various strains of the bacillus coli isolated in each case have not the same pathogenic virulence. We have found that when this organism is present in the interior of the vermiform appendix in an interval case, although the acute illness may have been some weeks previously, yet the bacillus coli will be as actively pathogenic when tested experimentally as a strain of the bacillus coli isolated from the peritoneal cavity during an acute attack of appendicitis. It follows from this observation that if during an operation of appendicectomy in the quiescent period the colon bacillus is allowed to escape into the peritoneal cavity probably fatal peritonitis will ensue in an exactly similar manner as if the operation had been done during the acute attack. In one instance we isolated a virulent strain of the colon bacillus from a very small abscess situated in the wall of the appendix just beneath the peritoneal coat. There had not been any acute symptoms in this case for eight weeks previously to this operation, but yet the peritoneum might easily have been infected.

Everyone who has studied the literature of appendicitis must have been struck with the fact that whenever the bacillus pyocyaneus has been isolated from a case of appendicitis or, in fact, any case of peritonitis, the colon bacillus has been absent. We have performed a large number of experiments which show that the colon bacillus will not grow in the presence of the bacillus pyocyaneus. If both organisms are inoculated into an animal we only recover the bacillus pyocyaneus. Exactly similar results are obtained when we attempt to isolate the bacillus coli after it has been inoculated into a tube of bacillus pyocyaneus. These experiments are fully described elsewhere, but it is important to refer to them here as it is still further proof that the colon bacillus not only does not outgrow every other organism but that it cannot even exist in the presence of the bacillus pyocyaneus.

The colon bacillus appears to be less virulent than the bacillus pyocyaneus when present in the peritoneal cavity in peritonitis and is certainly much less virulent than the streptococcus pyogenes. If present alone in the peritoneal exudate "at a distance" then the prognosis is extremely grave, while if the phagocytes are all degenerated then the prognosis is practically hopeless. If this organism is present together with the staphylococcus albus then the prognosis is less grave, although still very bad; if, however, the staphylococcus albus has been present in the peritoneal exudate some hours before the colon bacillus then a patient suffering from diffuse peritonitis has a far better chance of recovery. We have only given a few of the chief points concerning the relations of the colon bacillus to peritonitis, as a detailed account of our work will be given elsewhere.

POST-OPERATIVE PERITONITIS.

If the literature of the bacteriology of peritonitis as a whole is scanty, that of this particular form is, for obvious reasons, still more so. Excluding most of the cases in which the bacteriological examination has been made post mortem as being of little value, we are reduced to the few instances in which the examination has been made from material obtained at a second operation. In 1895 Cullen investigated four cases of fatal post-operative peritonitis but, unfortunately, all post mortem. The operations were all pelvic ones and proved fatal—two on the third day, one on the sixth, and one on the eighth. The organisms isolated were, in one case, the streptococcus pyogenes and the colon bacillus; in another the staphylococcus aureus and the bacillus pyocyaneus; in the third the staphylococcus aureus; and in the fourth the staphylococci aureus and albus. It should be noted that the cases in which the streptococcus pyogenes, the bacillus coli, and the bacillus pyocyaneus were found were the most rapidly fatal. These cases, occurring within a short interval of one another in the practice of one operator, were attributed to defective catgut. It is, however, difficult to believe that catgut which had undergone any sort of cleansing whatsoever could contain all these virulent organisms, and the fact that the material was obtained post mortem detracts from the value of the observation, but we are of opinion that these cases are really of the same class as one of hysterectomy in our series in which the bacillus pyocyaneus was found and which will again be referred to. Manahan in 1903, investigating 19 cases of peritonitis from various causes, examined only one post-operative case ante mortem. This was a case of enterectomy for carcinoma where the abdomen was reopened on the third day for peritonitis. Both films and cultures from the exudate showed the streptococcus pyogenes and the colon bacillus. We have examined seven instances, six from material obtained at a second operation and one within four hours of death. Of these cases, two were local intraperitoneal abscesses and the rest were instances of diffuse peritonitis.

Two cases of appendicectomy during a quiet interval.—The first concerned a man, 31 years of age, who had had two attacks of appendicitis, one seven months and one three weeks before admission. The appendix was removed 15 days after admission. At this time no swelling could be felt, the pulse and the temperature were normal, and the patient felt in perfect health. There were some vascular adhesions and a little cheesy material about the appendix which was strictured and contained a concretion. The appendix was removed by the clamp method—that is, without opening its lumen—and the abdomen was closed. On the same evening the pulse was 108 and the temperature was 100·2° F. 12 hours later the pulse was 112 and the temperature was 100·4° and at midday on the second day they were respectively 132 and 101°. The abdomen was now rigid and tender and gave a dull percussion note over the right iliac fossa. The patient vomited frequently and looked very ill. 22 hours after the first operation the abdomen was reopened, when a condition of universal redness and distension of the intestines was found, whilst turbid odourless fluid

bathed them everywhere and flakes of lymph lay amongst the coils. The inflammation was most intense in the cæcal region. There was no leakage from the buried stump. The abdomen was washed out and drained and intravenous saline infusion was performed, but death took place 44 hours after the first operation. Films of the exudate showed enormous numbers of the polynuclear cells, streptococci, and diplococci. Cultures from near the cæcum and at a distance both gave a pure growth of the streptococcus pyogenes; anaerobic cultures remained sterile. Ten cubic centimetres of the blood taken from the basilic vein at the operation gave a pure growth of the streptococcus pyogenes.

The second case occurred in a boy, 12 years of age, who had had an appendix abscess drained two months previously. He returned from a convalescent home in perfect health and with the wound healed. The appendix was found free from adhesions but strictured and exhibiting the scar of an old perforation. It was removed by the clamp method and the abdomen was closed. The peritoneum appeared perfectly healthy and cultures taken from its surface proved sterile. Within a few hours the boy became extremely ill and soon showed signs of diffuse peritonitis which became worse with extraordinary rapidity. Death occurred 40 hours after the operation. Films and cultures were taken within four hours of death. The films showed endothelial cells only and no organisms. Cultures from the exudate and from the surface of the gut gave a pure growth of the streptococcus pyogenes. Unfortunately the blood was not examined in this case.

The strain of the streptococcus pyogenes obtained from the peritoneal cavity in the first case presented the typical cultural characters of this coccus. It formed very long chains when grown in broth and stained well by Gram's method. The organism did not, however, grow anaerobically. This is, of course, an exception to the general rule in the life-history of the pyogenic cocci. This streptococcus was injected into the peritoneal cavity of a mouse and proved to be highly pathogenic. The organism was recovered from the spleen of the animal and was present in scrapings of this organ in very large numbers. The strain of the streptococcus pyogenes, which was isolated from the basilic vein, was found to be similar in every detail to the organism which had been isolated from the peritoneal cavity in the same case.

It will be noticed that there were no organisms seen in the peritoneal exudate of the second case of streptococcic peritonitis. The streptococcus which was isolated in this instance was similar in most respects to the organism which had been obtained from the peritoneal exudate and from the patient's blood in the first case, but with these exceptions, namely, that this coccus was a facultative anaerobe and that it was found to be non-pathogenic to mice. It has now been frequently demonstrated that a streptococcus which has been proved to be highly pathogenic to man may yet fail to produce any effect in animals and this is well illustrated by the instance which we have just quoted. In the first of these examples the streptococcus which was highly pathogenic to mice failed to kill a rabbit or even to have any pathogenic properties. These facts are very important when we come to consider that one of the first antistreptococcic sera to be placed on the market was obtained from a strain of the streptococcus pyogenes which had been isolated from one of the lower animals, not from a human source.

The film preparations of the peritoneal exudate which were examined in both instances serve to illustrate one very important point—viz., that the cells in the peritoneal cavity were found to be apparently healthy. It is true that in the second case we did not find any organisms but in the first case large numbers of streptococci were present. If, however, we examine the cells present in the peritoneal cavity in a case of peritonitis due to the colon bacillus both the polynuclear and mononuclear cells are always found to be degenerated. There may be some of the cells in a healthy state of preservation but the large majority are degenerated beyond recognition. This fact cannot fail to be of importance; we know that the body cells are actively phagocytic in cases of peritonitis due to the colon bacillus but only slightly so in those instances which are due to infections with the streptococcus pyogenes. It may be partly owing to this fact that in those cases of peritonitis due to the streptococcus pyogenes death occurs so very rapidly, much more so than in the case of any other known micro-organism.

With the colon bacillus free in the peritoneal cavity the prognosis is sufficiently bad, but with the streptococcus pyogenes it appears to be hopeless, and this in spite of the presence in one of these cases of enormous numbers of phagocytes which seem to be powerless against this virulent infection. We take the view that these cases are instances of infection at the operation, not from the stump of the appendix but from outside. If we adopted the theory of stump infection we should have to explain why the colon bacillus was not present; why two cases should have been due to an organism which is rarely found in appendicitis but which, when present, is of greater virulence than even the virulent colon bacillus; and why they should have recovered, the one from a catarrhal attack and the other from an abscess, and yet have retained within the appendix a streptococcus in such a state of virulence as to kill within 48 hours. Again, if these cases were due to a blood infection it is hardly possible that there would be the evidence of intense peritonitis so very soon after the original operation. If, however, the infection of the peritoneum is the primary lesion and the blood infection is secondary, as we suggest, then we have an explanation of what, to our mind, probably occurs in many fatal cases of peritonitis.

The bacillus pyocyaneus in post-operative peritonitis.—In a case of hysterectomy death was due to diffuse peritonitis caused by the bacillus pyocyaneus. Supravaginal amputation for fibromyomata had been done and the after progress was satisfactory for three days, after which the temperature began to rise and by the twentieth day there was a definite localised pelvic abscess. This was opened through the peritoneal cavity; its walls were formed partly by inflamed and distended intestine. The pus, which was thick and non-smelling, showed polynuclear cells, Gram-positive cocci and bacilli, and Gram negative bacilli. The clear fluid present in the peritoneal cavity beyond the abscess proved to be sterile, whilst the pus gave, both aerobically and anaerobically, a pure growth of the bacillus pyocyaneus. Death from diffuse peritonitis occurred eight days after the second operation. The necropsy showed universal purulent peritonitis. Ten cubic centimetres of blood taken from the basilic vein shortly before death grew the streptococcus pyogenes and the staphylococcus albus. In this instance the fatal infection of the peritoneum doubtless occurred by the opening of the abscess. Where the bacillus pyocyaneus came from in the first instance is doubtful. Possibly it was from the interior of the uterus but more probably it came from the inflamed intestine which formed part of the wall of the abscess. The absence of the colon bacillus is accounted for by its cultural relationship with the bacillus pyocyaneus, which has already been explained. In another instance the colon bacillus was found in a localised abscess after colotomy for acute obstruction. Death occurred from diffuse peritonitis.

We have three examples of staphylococcus infection. One patient had had gangrenous omentum removed from a strangulated hernia three weeks previously. The wound had been drained, had suppurated, and had healed. A localised intraperitoneal abscess around the omental stump yielded the staphylococcus albus, aureus, and citreus. The patient recovered. In another instance a large localised intraperitoneal abscess formed 14 days after myomectomy. The pus yielded a pure culture of the staphylococcus aureus and the patient recovered. In another case enucleation of a necrotic uterine fibromyoma was followed 14 days later by signs of diffuse peritonitis. The lower part of the abdomen contained a fibrino-purulent exudate from which the staphylococcus albus was obtained in pure culture both aerobically and anaerobically, whilst the films showed cocci only. The abdomen was washed out and drained. Death occurred three days later and at the necropsy it was found that the peritonitis involved only the lower half of the abdomen.

SEPTICÆMIC PERITONITIS.

We apply the term septicæmic to those cases in which the peritoneal infection is a secondary event and due to organisms brought by the blood stream. Although there is no absolute proof we consider that there is sufficient evidence to justify a belief in this manner of infection. There is little doubt that pneumococcic peritonitis is most frequently an infection by means of the blood stream, as Dudgeon and Branson have shown to be the case in most pneumococcic infections in children.

Streptococcic peritonitis.—Of this variety of septicæmic peritonitis we have examined two cases. The first instance occurred in a child aged seven months who was admitted for diffuse erysipelas. The whole cutaneous surface was at one time or another involved. On the tenth day of the illness the symptoms and physical signs of peritonitis appeared from which the child died within 24 hours.

The peritoneal cavity was opened within 20 minutes of death. There was diffuse peritonitis present; the intestines were bathed in a large quantity of turbid but non-offensive fluid. There was no attempt at agglutination of the intestines. Film preparations of the peritoneal exudate showed large numbers of polynuclear cells which were in an apparently healthy condition, and also large numbers of diplococci and streptococci which stained by Gram's method. Many of the leucocytes were phagocytic but we did not observe one single chain of cocci within the cells, only diplococci. No other micro-organisms were seen. A culture of the streptococcus pyogenes was obtained from the peritoneal exudate and also of the colon bacillus. There was no injury or ulceration of the intestines to account for the presence of the bacillus coli, so we must conclude that this organism had made its way into the peritoneal cavity as soon as the patient died, or even during the death agony. This is a typical example of septicæmic peritonitis.

The second case occurred in a man, aged 50 years. This patient had been ill with acute abdominal symptoms for 24 hours before the operation. A large quantity of clear exudate was found in the peritoneal cavity and an acutely inflamed mass covered with flakes of lymph in the great omentum. This tumour proved to be a round-celled sarcoma which had undergone inflammatory changes. The vermiform appendix was normal and there was no intestinal lesion. The patient died three days after the operation.

Large numbers of polynuclear and mononuclear cells were present in the cover-slip preparations of the peritoneal exudate but no micro-organisms. The fluid in the peritoneal cavity was found to be sterile but the staphylococci albus and aureus were obtained from the exudate near the inflamed sarcoma. A pure culture of the streptococcus pyogenes was grown from the surface of the tumour. It is very interesting to observe that although the streptococcus pyogenes was present on the surface of the tumour we failed to isolate this organism from the peritoneal exudate. Although there were large numbers of polynuclear cells in both these examples of streptococcic peritonitis, yet these cells were apparently normal and in neither instance contained any chains of cocci. We have already drawn attention to this peculiar behaviour of the cells in this variety of peritonitis, which is quite different from what is found in cases where the infection is due to the colon bacillus or to the bacillus pyocyaneus.

We consider that peritonitis due to the streptococcus pyogenes is generally a septicæmia. It would appear that in cases of peritonitis due to this organism there is hardly any local reaction at the seat of infection, such as always occurs in peritonitis due to the colon bacillus, bacillus pyocyaneus, and staphylococcus aureus. The streptococcus pyogenes is absorbed from the peritoneal cavity with such rapidity that the patient is dead before the tissues and body fluids are able to offer any response to so vigorous an attack. We shall only obtain satisfactory results in the treatment of this disease when a valuable multivalent anti-streptococcic serum is discovered. It is extremely doubtful if more favourable results will ever be attained by surgical interference.

Pneumococcic peritonitis.—It is impossible to be certain of the origin of many cases of pneumococcic peritonitis but it is highly probable that in the large majority of cases it is a blood infection. There is no doubt, at any rate, that this statement is true as regards this variety of peritonitis in children. There is one point, however, which still requires explanation—namely, how it is that the peritoneum is so much less frequently infected with this organism than the other serous sacs. Some observers have found the pneumococcus in the peritoneal cavity in cases of pleuritis without any evidence of inflammation of the peritoneum. If we study the literature of peritonitis we find that the pneumococcus, like the streptococcus pyogenes, is frequently stated to be present without sufficient evidence. In 1886 Cornil described pneumococcic peritonitis for the first time and since that paper was published the subject has been very exhaustively dealt with, both in this country and abroad, but chiefly by French bacteriologists.

Our own series includes, in addition to one instance in which the pneumococcus was found in an appendix abscess, but not in pure culture, three instances of pure pneumococcic infection of the peritoneum. One case was operated upon; in the other two the exudate was examined within 20 minutes of death. The first example occurred in a male child, aged seven weeks, who had been ill for two days. There was œdema of the abdominal wall on admission to the hospital. Slight but distinct jaundice was present. The temperature was 100° F. and the pulse was 120. No operation was done and the child died on the third day of the illness. At the necropsy a large quantity of greenish fluid was found in which were suspended flakes of fibrin. A pure culture of the pneumococcus was obtained from this exudate. We failed, however, to find a source of infection.

The second case concerned a rickety male child, aged two and a half years. At the necropsy, in addition to the peritonitis which was diffuse but not of a very severe type, broncho-pneumonia, empyema, suppurative pericarditis, and lymphadenitis of the mediastinal glands were found. The peritoneal exudate was thick greenish yellow pus. A pure culture of the pneumococcus was obtained from the pleura, pericardium, and from the surface of the lungs, but the peritoneal exudate was sterile. This example might be described as an instance of acute polyserositis.

The third case was one of extreme interest. It has been stated by certain continental surgeons that if in a child suffering from peritonitis intracellular Gram-negative diplococci are present in film preparations of the vaginal secretion then operative interference is quite unnecessary because that is regarded by them as sufficient evidence that the peritonitis is gonorrhœal. The case which we are about to describe is sufficient proof that such a statement will not hold in every case. A little girl, aged six years, was seized whilst at school with acute abdominal pain. The bowels were opened four times that day. Vomiting commenced on the following morning and continued at short intervals for 24 hours. On admission she looked extremely ill. The pulse was 140 and the temperature was 103·2° F., rising to 105·2° immediately before the operation. The abdomen moved well on respiration and was not distended but was very tender on palpation. The lungs appeared to be normal. There were no signs of otitis or meningitis. The abdomen was opened 48 hours after the first symptoms had been observed. A small quantity of thin, odourless pus was present in which strings of fibrin were suspended. The intestines were reddened but not distended and the peritonitis was distinctly more marked in the lower half. The appendix was normal and the Fallopian tubes did not appear to be more inflamed than the rest of the pelvic peritoneum. The abdominal cavity was flushed out with hot saline solution and closed. Death occurred two hours later. At the necropsy the lungs were found to be normal as also were the rest of the structures above the diaphragm. The meninges were normal. Besides the condition of diffuse peritonitis which was present the uterus was found to contain about a drachm of pus.

Bacteriology.—Film preparations of the vaginal secretion taken before the operation showed large numbers of cocci and diplococci which failed to retain Gram's stain. The diplococci were chiefly intracellular but also extracellular. The ends of the cocci were flattened and these ends were approximated. Enormous numbers of polynuclear and mononuclear cells were present in cover-slip preparations of the peritoneal exudate. Large numbers of Gram-positive diplococci were also seen. These cocci were entirely extracellular. Exactly similar results were obtained with film preparations of the pus from the interior of the uterus, except that in this instance short chains of cocci were also present. A pure culture of the pneumococcus was obtained from the peritoneal cavity and from the interior of the uterus. This organism was intensely pathogenic to mice. A capsulated diplococcus was obtained from the various viscera and blood of the infected mice. This case is, therefore, of exceptional interest. It is, as far as we know, the first instance in which the pneumococcus has been isolated from a case of pyometra. Whether the abscess in the cavity of the uterus was the primary focus it is impossible to say, but it is not unlikely. A primary focus will be found in most cases of pneumococcic infections in children, however, if the *middle ears* are carefully examined. None of the cells in the peritoneal exudate in this case were degenerated, although the pneumococcus appeared to be extremely virulent. We know, however, that in the less acute cases of pneumococcic peritonitis the leucocytes are actively phagocytic. It is possible that the organism which was found in the vaginal exudate was the gonococcus, while the organism which produced the most important changes elsewhere was the pneumococcus. There were certain points as regards the morphology of the organism which were unlike the gonococcus but these are not as important as the fact that the organism did not stain by Gram's method and was confined to the interior of the leucocyte. Whichever view we hold as to the nature of this organism it is quite certain that although Gram-negative

intracellular cocci are found in the vagina they need not necessarily be the cause of the peritonitis arising in such a case.

BACILLUS COLI[2] AGGLUTINATION REACTIONS.

Much work has been done on the agglutination of colon bacilli with typhoid serum and the contradictory results which have been obtained are probably due to the fact that some observers consider that if agglutination of an organism occurs even with a dilution of 1 in 2 it is evidence that specific agglutinins are present. This may be so, but we must always remember that bacilli can often be agglutinated with normal serum if very low dilutions are employed. Ever since Gruber and Durham published the results of their experiments on typhoid agglutination in 1896 and Widal and Grünbaum made a practical application of these experiments, serum diagnosis has become a very important subject. It is surprising that the agglutination of colon bacilli with the serum of patients other than those suffering from typhoid fever has not been more fully investigated when we consider the important part which the colon bacillus plays in human diseases. Widal considers that in any case of bacillus coli infection it is only the specific strain of colon bacilli which will be clumped with the patient's serum. In our investigations we have employed exactly the same technique as is employed in the clinical laboratory of St. Thomas's Hospital for the serum diagnosis of typhoid fever. A 12 to 24 hours' agar culture of the colon bacillus was employed in every experiment. Broth cultures were never used because there is always some agglutination of the bacilli which are growing in the broth and there is always a tendency of the bacilli to clump in the control test. A filtered emulsion of the bacilli in 0·85 per cent. normal saline solution was found to produce the best results. Dilutions of 1 in 10, 1 in 20, and 1 in 50 were employed in every instance. Lower dilutions were not used, as it is extremely improbable if any importance can be attached to positive results obtained with these very low dilutions.

We tested the agglutinative property of the serum from *68* cases of peritonitis on the special strain of the colon bacillus isolated in each instance. We also performed a large number of experiments with the serum from cases of chronic constipation due to various causes, cases of anæmia with septic stomatitis, and with the serum of patients suffering from typhoid fever. We also tested the serum from animals which had died from peritonitis due to experimental inoculation with the colon bacillus, on the culture of the bacillus which had caused the death of the animal and which had been isolated from its peritoneal cavity or from its heart blood. Although we performed these experiments on the bacilli obtained from some 30 inoculated animals, we failed to obtain any reaction with a dilution of 1 in 10 in a single instance. It was hardly to be expected that a positive reaction would be obtained when we remember that the animals were dead in every case within 24 hours and a reaction with a dilution of 1 in 10 is seldom obtained in the first 48 hours of typhoid fever. In our 68 cases of peritonitis we failed to obtain any reaction with a dilution of 1 in 10 in 52 instances. In five examples some slight agglutination was obtained with this low dilution, but none with a dilution of 1 in 20. In six instances we obtained a reaction with both dilutions of 1 in 10 and 1 in 20. In three of these cases the colon bacillus which had been isolated from the patient was found to be non-motile. The results of these experiments can best be understood if expressed in a tabulated form.

Dilution.	No. of cases.	Type of agglutination.	No. of cases.	Type of agglutination.
1 in 10	3	Marked agglutination and slight loss of motility in 30 minutes.	3	Enormous clumps had formed within 30 minutes. No loose bacilli seen.
1 in 20	3	Ditto.	3	Similar result in two cases but less marked in one.

In every instance but one we failed to obtain any reaction with a dilution of 1 in 50 and in this example a higher dilution was not employed. In one case the patient's serum produced very marked clumping of his own colon bacillus and also marked loss of motility with dilutions of 1 in 10 and 1 in 20, but only a very slight reaction took place with a dilution of 1 in 50. In four instances we obtained a reaction which would be described as diagnostic of typhoid fever—namely, complete agglutination of the bacilli with dilutions of 1 in 10, 1 in 20, and 1 in 50 within a period of 30 minutes. In three of these cases the bacilli were non-motile but in the one example in which the bacillus was motile complete loss of motility occurred. In all these 18 examples in which more or less reaction took place we failed to produce any agglutination or loss of motility of these bacilli with the serum derived from cases of typhoid fever, chronic constipation, anæmia with oral sepsis, or with the serum derived from the other cases, which had already been shown to possess specific agglutinins. It is thus evident that the reaction in each instance was a specific reaction and that the bacilli isolated from these cases must have had a specific effect. We might mention here that, contrary to many observers, we have failed with a dilution of 1 in 10 to produce agglutination of the colon bacillus with positive typhoid serum, without exception, although we have made the attempt with very large numbers of strains of colon bacilli and with very many specimens of positive typhoid serum.

Beyond the fact that all the cases which gave reactions with dilutions of 1 in 20 and 1 in 50 were cases of appendicitis, we cannot trace any factor common to them all. Five were abscess cases, all of which recovered; three were instances of diffuse peritonitis, all of which proved fatal; two were cases operated upon during a quiescent interval after a recent acute attack; and the last was a case of only 20 hours' history, with early gangrene, which recovered.

BACILLUS PYOCYANEUS.

It has been stated by several observers that the bacillus pyocyaneus is an obligatory aerobe, but this statement is incorrect. The organism grows well under anaerobic conditions but, as already mentioned, does not produce any pigment. It has also been stated that it retains Gram's stain but this view also appears to be erroneous. The organism is generally considered to be actively motile, but if it is grown under anaerobic conditions the motility is much less than when it is grown aerobically. We must now refer to the various statements which have been made as to the pathogenicity of this bacillus. Professor J. McFarland considers that this organism is feebly pathogenic. Dr. W. Bulloch stated at a meeting of the Pathological Society of London that the bacillus was one of the most virulent of all known micro-organisms for the ordinary laboratory animals. He also mentioned that he had frequently observed suppurative cerebro-spinal meningitis in rabbits inoculated with this bacillus. Few observers have referred to the pathogenicity of this bacillus for man. We have found it to be highly pathogenic when present in the peritoneal cavity of man and other observers have also found it to be so in other situations but, on the other hand, it may present only the most feeble pathogenicity. The bacillus is also extremely virulent when injected into the peritoneal cavity of guinea-pigs but to a much less extent when injected subcutaneously. It appears that various cultures differ as to their pathogenicity, for while one strain of this bacillus may produce a rapidly spreading hæmorrhagic œdema when injected subcutaneously into guinea-pigs and death in 24 hours, or even less, another culture of the organism may only lead to a localised abscess. The same thing evidently happens in the case of a man. J. T. Eastman and T. V. Keen have recently published a case of pyocyaneus septicæmia originating in a septic traumatic lesion of the arm. The bacillus was cultivated from the blood and the patient recovered after a long illness.

The relation of the bacillus pyocyaneus to the colon bacillus.—If we refer to the literature of appendicitis we shall find that in those cases of appendix abscess from which the bacillus pyocyaneus was isolated the colon bacillus was not found, and we have obtained exactly the same results. In the five cases of peritonitis from which we isolated the bacillus pyocyaneus the colon bacillus was found to be absent. This must, therefore, be due to some special circumstance and not to a mere chance. We have made a careful study of this subject and have been able to show to what this extraordinary circumstance is due.

If a culture tube of broth is inoculated with both the organisms in question at the same time and then the tube is incubated for 24 hours and then plated out we shall only obtain colonies of the bacillus pyocyaneus. If the bacillus coli is added to a growth of the bacillus pyocyaneus or *vice versâ* we obtain identical results. It was found that with the various strains of bacillus coli and bacillus pyocyaneus

[2] The cultural characters of this organism were not referred to.

at our disposal neither type of bacillus would grow in phenol broth of greater strength than 0·1 per cent. and if a tube of this strength of phenol broth was inoculated with the colon bacillus and the bacillus pyocyaneus simultaneously, incubated for 24 hours at 37° C., and then plated on the surface of agar, however great a dilution was employed only the bacillus pyocyaneus was obtained. Half a cubic centimetre of a 24 hours' culture of the colon bacillus and the bacillus pyocyaneus was inoculated into the peritoneal cavity of a guinea-pig, the animal was dead from peritonitis in 18 hours, but although numerous methods were employed only the bacillus pyocyaneus was cultivated from the peritoneal cavity of the animal.

Many attempts were made to isolate the colon bacillus when the same experiments were carried out under anaerobic conditions but they failed in every instance. It was thought probable that if filtered cultures of the bacillus pyocyaneus were inoculated with the bacillus coli and the bacillus pyocyaneus and then if the culture were plated only the bacillus coli would be cultivated, but in that experiment, as in all the others, we failed to cultivate the colon bacillus and obtained only the bacillus pyocyaneus. In fact, whatever methods were employed, the colon bacillus was never recovered in the presence of the bacillus pyocyaneus. We must, therefore, come to the conclusion that the bacillus pyocyaneus, but not its toxins, exert an inhibitory influence on the colon bacillus. The result of these experiments is fully borne out in the bacteriological laboratory, in the tissues of animals, and in the tissues of man. It would, of course, serve no purpose to replace the colon bacillus by injecting the bacillus pyocyaneus, as this organism is in most cases more highly pathogenic.

BACILLUS PYOCYANEUS AGGLUTINATION REACTIONS.

The methods employed in this reaction were exactly similar to those used in the case of the colon bacillus. We tested the agglutinative property of the patient's serum in four out of the five cases from which we had isolated the bacillus pyocyaneus. In three instances we failed to obtain any reaction, even with a dilution of 1 in 10, but in one case an excellent reaction was obtained. The patient's serum produced large diffuse clumps of the bacilli and almost complete loss of motility within a period of 30 minutes with a dilution of 1 in 20, whilst with a dilution of 1 in 50 good diffuse clumping and some loss of motility were seen within a period of one hour. Although this reaction would not be considered as positive in the case of typhoid fever, yet it is an extremely good reaction and shows that the patient had produced specific agglutinins for this special strain of bacilli. The presence of specific agglutinins in animals' serum for special strains of bacillus pyocyaneus has been demonstrated by previous workers on this subject, but we cannot recall any previous experiments having been made on the action of human serum on the bacillus pyocyaneus isolated from the same case as that from which the serum was obtained. One of us (L. S. D.) has made numerous experiments with the serum of patients suffering from pyocyaneus infections but has only once previously obtained a reaction even with a dilution as low as 1 in 10. The bacilli isolated from the peritoneal cavity of our positive case were not agglutinated with the serum obtained from other cases of pyocyaneus infections. In no instance did we obtain any agglutinative reaction with the serum of animals which had been inoculated with this bacillus.

The patient whose serum gave such a well-marked reaction with the bacillus pyocyaneus obtained from her own abscess lived for 27 days after the primary operation. A localised pelvic abscess was opened through the peritoneal cavity on the twentieth day after hysterectomy. The pus yielded a pure culture of the bacillus pyocyaneus. The serum for the reaction was taken two days after this second operation.

A SUMMARY OF THE PATHOGENIC PROPERTIES OF THE BACILLUS COLI AND BACILLUS PYOCYANEUS.

The strains of colon bacillus used in the inoculation experiments were obtained from the following sources: 17 cases of purulent exudate around the appendix, whether localised or diffuse; in five cases from the interior of quiescent appendices; in two cases from the peritoneal exudate after the perforation of a typhoid ulcer; in one instance from the sac of a strangulated hernia; in one case from the interior of an acutely inflamed ovarian cyst; once from the peritoneal exudate in acute intestinal obstruction; and once from an abscess of the abdominal wall after appendicectomy. In each case from a quarter to one cubic centimetre of a young broth culture of the bacillus was injected into the peritoneal cavity of a guinea-pig. Death occurred in from 12 to 24 hours. The post-mortem appearances were similar in every case. Diffuse peritonitis was present, usually with a small amount of thick sticky fluid. Pus was present in every case on the under surface of the liver and diaphragm. The intestines were usually distended and reddened. Free gas in the peritoneal cavity was noted in a few instances. The retroperitoneal fat was always swollen. In 12 instances fluid was present in the pleural sacs similar to that in the peritoneal cavity. A hanging drop preparation of the peritoneal exudate always showed large masses of non-motile bacilli which were occasionally lying in clumps. Numerous phagocytes very much degenerated were constantly present. In film preparations of the exudate stained by Leishman's method the bacilli showed a pseudo-capsule. Not infrequently the bacilli exhibited bipolar staining. The colon bacillus was obtained in pure culture from the peritoneal exudate in every case and from the pleural effusion. In those cases in which cultures were made from the heart blood the bacillus was also obtained. No agglutination of the bacilli with the animal serum was obtained in any case.

In seven instances a preliminary injection of a young culture of a staphylococcus albus was found to afford protection against a proved virulent culture of the colon bacillus inoculated into the same peritoneal cavity 24 hours later. In another instance, in a precisely similar experiment, the staphylococcus albus was found to afford protection for five days. At the necropsy there was no evidence of peritonitis, nothing abnormal above the diaphragm, and no organisms or phagocytes were seen in the minute drop of peritoneal exudate which was present. The animal was markedly wasted. In stained film preparations large numbers of endothelial cells were seen to contain both cocci and bacilli. The staphylococcus albus and the colon bacillus were cultivated from the peritoneal cavity. In yet another experiment carried out in the same manner the animal died 11 days later. There was an intraperitoneal abscess, from which were cultivated the staphylococcus albus and the colon bacillus, and there was suppurative pericarditis due to the colon bacillus.

Simultaneous inoculations of equal quantities of a virulent colon bacillus and a staphylococcus albus were made into the peritoneal cavity of six guinea-pigs. In one instance death occurred in 12 hours, in another in 16 hours, and in a third in 48 hours. Three of the animals recovered. When killed some weeks later nothing was found except marked wasting.

Inoculation of toxins.—When one and a half cubic centimetres of the mixed filtrates of several strains of the colon bacillus were inoculated into the peritoneal cavity or into the subcutaneous tissues of guinea-pigs the animals rapidly and markedly wasted.

The bacillus pyocyaneus used in the inoculation experiments was obtained from three cases of appendicitis and from one case of post-operative peritonitis. Inoculated into the peritoneal cavity of a guinea-pig this organism produces a rapidly fatal diffuse peritonitis. When injected subcutaneously a gangrenous abscess and marked wasting of the animal resulted.

Inoculation of toxins.—Ten cubic centimetres of the mixed filtrates of several strains of this bacillus were injected into two rabbits without causing any obvious effect and the animals were alive and well three months later.

THE RÔLE OF THE PHAGOCYTES IN PERITONITIS.

We have made a preliminary investigation on phagocytosis, a subject of such great importance in peritonitis. One of us (L. S. D.), in conjunction with Dr. E. A. Ross, intends to publish a detailed study on phagocytosis at a later date. We undertook these experiments for the purpose of determining which cells play the most important part in the protection of the body against micro-organisms which were introduced into the peritoneal cavity at definite periods. In this preliminary investigation we have only studied phagocytosis as it concerns the colon bacillus and staphylococcus albus. We are able to show that the coarsely granular eosinophile cell, which most observers have considered to be non-phagocytic and others only slightly so, is one of the most important, if not the most important, phagocyte in the early stages of peritoneal infection, while the finely granular polynuclear cell becomes, as is already well known, the important phagocyte in the later periods of peritonitis. The result of these investigations will be more easily understood by giving a short account of each experiment.

Experiment 1.—One and a half cubic centimetres of a 24 hours' broth culture of the staphylococcus albus were injected into the peritoneal cavity of a guinea-pig; the animal was killed and the peritoneal fluid was examined 24 hours later.

Fresh drop of peritoneal fluid.—Enormous numbers of phagocytes. Very small amount of free fluid. No signs of peritonitis to the naked eye.

Film Preparations of the Peritoneal Fluid Stained by Leishman's Method.

	Total number.	Percentage.
Finely granular polynuclear cells	424	84·8
Small mononuclear cells	1	0·2
Large mononuclear cells	72	14·4
Large hyaline cells	1	0·2
Eosinophiles	1	0·2
Transitional cells	1	0·2
	500	100·0

The finely granular polynuclear cells in the guinea-pig's blood correspond to the polynuclear neutrophiles in human blood and are similar cells except that the granules in the guinea-pig's blood are eosinophilic. Most of the large mononuclear cells were vacuolated, most of the polynuclear cells were degenerated, while all these cells and the large mononuclear cells were phagocytic. Numerous endothelial cells were present in the film preparations but they were not included in the differential count.

Experiment 2.—One and a half cubic centimetres of a 24 hours' broth culture of the staphylococcus albus were injected into the peritoneal cavity of a guinea-pig. The animal was killed 15 minutes later and the peritoneal fluid was examined. A large amount of perfectly clear fluid was present in the peritoneal cavity. A hanging drop of the peritoneal fluid showed large numbers of leucocytes which were apparently phagocytic.

Film Preparations of the Peritoneal Fluid Stained by Leishman's Method.

	Total number.	Percentage.
Finely granular polynuclear cells	8	2·0
Small mononuclear cells	103	25·75
Large mononuclear cells	75	18·75
Coarsely granular eosinophiles	*214*	*53·5*

No less than *131* of the coarsely granular eosinophilic cells were phagocytic while many of these cells contained numerous cocci.

Experiment 3.—One and a half cubic centimetres of a 24 hours' broth culture of the staphylococcus albus were injected into the peritoneal cavity of a guinea-pig. The animal was killed an hour later and the peritoneal cavity was examined immediately after death. A large amount of clear fluid was present. No signs of peritonitis were visible. A hanging drop of the peritoneal fluid showed large numbers of leucocytes, many more than were present in a drop of the fluid from the guinea-pig's peritoneum in Experiment 2.

Film Preparations of the Peritoneal Fluid Stained by Leishman's Method.

	Total number.	Percentage.
Finely granular polynuclear cells	2	0·5
Small mononuclear cells	345	86·25
Large mononuclear cells	50	12·5
Coarsely granular eosinophiles	3	0·75

Every variety of cell was phagocytic.

Experiment 4.—The animal (guinea-pig) was killed two hours after an exactly similar proceeding as occurred in the previous experiments. Much more fluid was present than in the case of the preceding experiment. The peritoneal fluid was found to be slightly turbid. A hanging drop of this peritoneal fluid showed large numbers of leucocytes.

Film Preparations of the Peritoneal Fluid Stained by Leishman's Method.

	Total number.	Percentage.
Finely granular polynuclear cells	458	91·6
Small mononuclear cells	22	4·4
Large mononuclear cells	1	0·2
Coarsely granular eosinophiles	19	3·8

Nearly every finely granular polynuclear cell was found to be phagocytic, while eight of the coarsely granular eosinophiles were also phagocytic.

Experiment 5.—A guinea-pig was killed one hour after a peritoneal injection (half a cubic centimetre) of the colon bacillus. There was hardly any peritoneal fluid present. A hanging drop of the peritoneal exudate showed large numbers of leucocytes which were apparently phagocytic. In this case the phagocytic reaction was extremely well marked but every cell was *degenerated* beyond recognition.

Experiment 6.—A guinea-pig was killed four hours after an injection of a similar dose of the colon bacillus as in the preceding experiment but another strain of the bacillus was used. The peritoneum was injected in this case and a good deal of peritoneal fluid was present.

Film Preparations of the Peritoneal Fluid Stained by Leishman's Method.

	Total number.	Percentage.
Finely granular polynuclear cells	245	61·25
Small mononuclear cells	53	13·25
Large mononuclear cells	21	5·25
Mast cells	11	2·75
Coarsely granular eosinophiles	70	17·5

28 of the eosinophiles were phagocytic as were eight of the small mononuclear cells. Every finely granular polynuclear cell was phagocytic but all were degenerated.

Experiment 7.—This animal was killed 15 minutes after receiving an intraperitoneal injection (one and a half cubic centimetres) of a 24 hours' broth culture of the staphylococcus albus. The peritoneal fluid, which was examined immediately after death, was found to be in large amount and quite clear. There was no evidence of peritonitis. A hanging-drop preparation of the peritoneal fluid showed a large number of cells which were apparently phagocytic. We did not observe any extracellular cocci.

Film Preparations of the Peritoneal Exudate Stained by Leishman's Method.

	Total number.	Percentage.
Finely granular polynuclear cells	0	0·0
Small mononuclear cells	293	73·25
Large hyaline cells	14	3·5
Coarsely granular eosinophiles	93	23·25

We found that 48 of the coarsely granular eosinophiles were phagocytic. Many of the lymphocytes, both small and large, and the large hyaline cells were also found to be phagocytic.

As a result of these few experiments on phagocytosis we have been able to show that many of the leucocytes which are present in normal blood play a very important part in peritoneal infections. It is impossible to form any absolute conclusions from so few experiments but it is quite evident that while the staphylococcus albus provokes an extensive phagocytosis within a period of 15 minutes of injecting the organism into the peritoneum, as time advances the cells increase in number and instead of the mononuclear cells and the coarsely granular eosinophiles being the chief phagocytes the polynuclear cells with fine eosinophilic granules play the chief part in the protection of the body. The phagocytes, however, in the case of the staphylococcus albus are in good condition after many hours of warfare with the micro-organisms, but the colon bacillus may cause a very rapid degeneration of leucocytes within one hour of peritoneal infection; in every instance the colon bacillus provokes a rapid and extensive phagocytosis, almost entirely of the finely granular polynuclear variety. This bacillus, however, causes a rapid and extensive degeneration of the leucocytes, a circumstance which is not repeated in the case of the white coccus until a great many hours have elapsed.

We are now in a position to realise the harm that may be done when the peritoneal cavity is washed out in cases of peritonitis, more especially in those instances in which there is a staphylococcus infection of the peritoneum, beyond the limits of the virulent colon bacillus. If we wash away the phagocytes from the peritoneal cavity with large quantities of saline solution we allow many micro-organisms to remain in the peritoneal cavity, to say nothing of carrying the colon bacillus into fresh regions of the peritoneum, and we replace the cells and body fluids which are actively engaged in the defence of the body against their powerful opponents with a much less valuable fluid.

We have only one more point to which we wish to draw attention—namely, the phagocytic properties of the eosinophile (coarsely granular) and the small lymphocyte. We were most careful in these experiments to avoid drawing the cover-slip over the surface of the omentum; we only used the free fluid in the peritoneal cavity. There can no longer be any doubt not only that the small lymphocyte is a phagocyte but that the eosinophile possesses phagocytic properties of the very greatest importance.

ERRATUM.—In the first lecture, published in THE LANCET last week, a misprint occurs. The top line of the right-hand column of p. 479 reads: "Within a period of 30 minutes with a dilution of 1 in 150," &c. As the context shows it should have read: "Within a period of 30 minutes with a dilution of 1 in 50," &c.

PLASTIC SURGERY.[1]

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THE term "plastic" was originally applied to a domain of surgery which included few operations except those for hare-lip, cleft palate, loss of the nose, extroversion of the bladder, hypospadias, and the deficiencies caused by burns and other injuries. It is still, even in some of the most modern of text-books, limited in this manner. Its methods almost always included refreshing the edges or surfaces to be united and, when the union could not be effected without force, parallel "incisions of relaxation," as they were called. As a type, recall an ordinary operation for cleft palate. But, in truth, *plastic surgery permeates nearly all surgery*. An ordinary flap amputation is an example of plastic surgery. When a portion of the body is removed temporarily and replaced precisely in its original situation I myself should hesitate to regard that as a "plastic" operation; but, curiously, such a replacement is recognised as "plastic" if the part replaced contains bone. Hence we have "osteoplastic" trephining. When the region operated on was on some surface of the body of fairly considerable area—e.g., the arm, the neck, or even the cheek—incisions were made according to a variety of geometrical-looking designs. Almost every one of these designs is occasionally named after some professor and they remind me of those "complete letter-writers" in which one could find the precise words in which to propose, to accept, or to decline marriage, how to borrow money and how to refuse to lend it in language noble, sympathetic, and decisive. They are admirable but often inapplicable to the particular case. These plans have their uses but they help us little in what is the problem, *par excellence*, in almost every individual case of true plastic surgery—namely, where to find the required raw material. That is the main question. Unless we can answer it the result will be tension on the sutures, non-union, and—failure. There are, it is true, cases where simply shifting the nearest piece of skin suffices.

FIG. 1.

Deficiency of skin over the left popliteal space repaired by a flap taken from the inner side of the right thigh. (For cicatricial contraction of the left knee.)

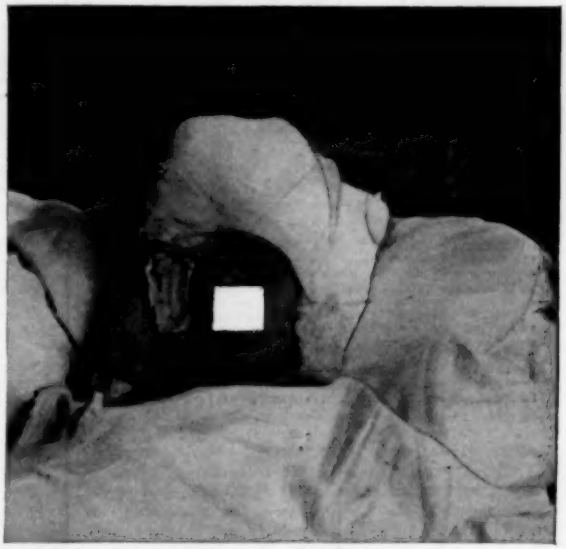
[1] This paper is founded upon the Harveian Lecture given before the Harveian Society of London on Oct. 13th, 1904.

A case of fracture of the tibia was further complicated with destruction of an area of skin over the shin. A flap of skin and fat was shifted from over the gastrocnemius to cover the bone, and on the bared muscle were placed Thiersch's grafts. In another case (somewhat similar, surgically speaking) the bone was successfully covered with thick Wolfe's grafts without any pedicle. A Wolfe's graft contains the whole thickness of the true skin with fat carefully removed.

Plastic operations in which the line of incision, however ingeniously made, will enable the immediately adjacent skin to suffice are almost exceptional. Skin has more frequently to be brought from a distance, that is, if a really good result is desired. Otherwise the final state will be one of cicatricial contraction. Now the very object of many plastic operations is to do away with, or to prevent, cicatricial contraction. One has to study what part can spare the required skin and at the same time be brought near the deficient area or wound and kept there for some days without unbearable discomfort. The patient's age must be considered. A baby will pass comfortably through a fortnight with his arm firmly attached to his head; while a middle-aged patient, especially if fat, stiff, and rheumatic, would find 24 hours passed in the same way painful. The parts need not absolutely touch. If the pedicle of the transplanted flap is wide it may also be long. This principle can be applied most usefully in amputations of the leg. The skin and subcutaneous soft structures of the heel or even of the instep or of the sole of the foot may be transferred to the middle of the same leg, either to the front of the shin or to the end of an amputation stump there. (See Figs. 4, 5, and 6.)

There are two other ways in which transplants can be brought from a distance: (1) by using a third part as an intermediate host and (2) by boldly cutting the transplant free. Even in thick transplants an undivided pedicle is not always an absolute necessity, however desirable it may be. Remember how often the end of a finger or even the tip of a nose, after complete severance, has been sewn on again, has adhered, and lived. It is rarely worth while to employ a third part to carry material from a first to a second. It is generally more convenient to take from place No. 1 to No. 2 and then to mend No. 1 by taking from No. 3, in other words, to rob Peter to pay Paul and some other saint to compensate Peter. For example, a girl was recently in the West London Hospital in whom the skin of the throat from

FIG. 2.



The right arm fixed to the face by plaster-of-Paris for exchange of the large hairy mole on the face with the skin of the forearm.

FIG. 3.

In this case (in the West London Hospital, September, 1904) the left horizontal ramus of the lower jaw was removed for epithelioma of the jaw and the side of the tongue. The flap, A, B, D, C, was turned up and passed through the incision, G, into the mouth. When it had adhered to the inside of the cheek, enough of it was cut off to turn up and to cover the wound on the side of the tongue and its depressor muscles. With a little stretching E F reached to D D, and healing was complete. The chin has not been pulled over to the left by cicatricial contraction, the mouth opens freely, and there is plenty of room for the dentist to fit an artificial jaw and teeth into. (February, 1905.)

FIG. 4.

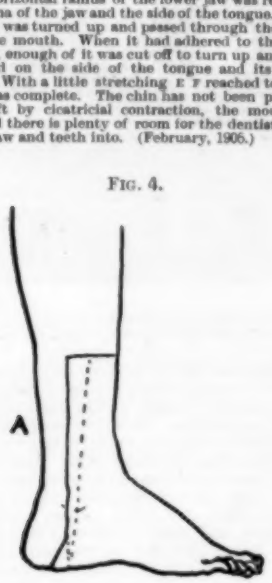
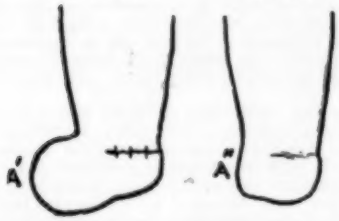


FIG. 5. FIG. 6.



Figs. 4, 5, and 6 illustrate an amputation of the leg at the junction of the middle and lower thirds for disease of the ankle with multiple sinuses. The heel, including a part of the os calcis, was used to cover the stump. The three figures show at A, A', and A'' how the long pedicle A gradually wastes till the stump can only be distinguished from an ordinary Syme's or Pirogoff's amputation by the shortness of the leg. I performed a similar operation on a patient under the care of Mr. Frederick Lawrance on May 26th, 1895.

the chin down to the clavicles had been burnt and replaced by a cicatrix which held the chin downwards and to one side (traumatic wry-neck). The cicatrix was excised and replaced by a flap from the right upper arm. Afterwards the arm was repaired from the chest and the thoracic wound was closed, partly by bringing its edges together and partly by Thiersch's grafts from the thigh.

Finally, whether there be two steps or only one in a given case, the last deep wound made has to be closed either by forcing its edges together or by Thiersch's grafts or partly by

FIG. 7.

FIG. 8.

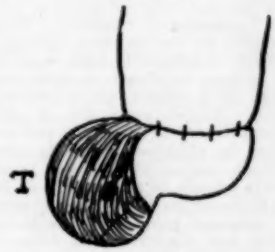


FIG. 9.

Figs. 7, 8, and 9 illustrate a case in which the skin of the heel having been destroyed the soft tissues of the sole of the foot were used to cover a stump. The base of the flap contained the plantar vessels and nerves. Its pedicle, which was *uncovered by skin*, at first formed a fleshy tumour T (see Fig. 8) but in a few months the stump could only be distinguished from a Syme by the linear cicatrix which formed a complete circle.

bringing the edges together and partly by Thiersch's grafts. For example, in the case illustrated by Fig. 3 there was, after the skin required had been cut off, enough left on the pedicle and on the back part of the root of the neck to permit the large skin wound to be closed entirely by sutures. In many cases a large wound can be sutured down to a smaller size and the remainder closed by Thiersch's grafts. An example of this has just been given in the case of cicatrix of the throat after a burn. The most convenient place for taking Thiersch's grafts from is usually the front of the thigh.

The base of a flap should be wide. An oblong flap with a base narrower than the length is apt to slough at the distal

extremity. A very narrow pedicle is worse than useless unless it contains the artery and vein supplying the rest of the flap. If a very narrow pedicle be altogether divided one at all events gets a free flap not dragged upon by the part supplying it.

One of the best examples of a pedicle containing the blood-supply is that already referred to and illustrated by Figs. 7, 8, and 9. The skin of the left heel and instep, the dorsalis pedis artery, and, in part, the os calcis were destroyed, amputation was done just above the ankle-joint. The flap, shown in Fig. 7, was so cut that it consisted of a skinless pedicle, P, containing the plantar vessels and nerves, while the rest of it, B, was covered with skin and came from the ball of the foot close to the toes. For a month or two the doubled-up raw pedicle formed an ugly protuberance (Fig. 8) but this rapidly wasted and finally the stump could only be distinguished from a "Syme" by the completeness of the circle formed by the linear cicatrix. (See Fig. 9.) This case was reported in the *Annals of Surgery*, vol. viii., p. 440. Date of operation, April 2nd, 1888.

After amputating the breast and removing skin freely one sometimes finds a space of several square inches bare of skin after the edges of the wound have been drawn together as tightly as is justifiable. The extra skin must be taken generally from that region of loose skin, the axilla. If the raw surface is near the axilla a pedicled flap may be used. If it is near the sternum, as much as from six to ten square inches, or even more, can be cut entirely free from its original site and transferred, more or less successfully, to the inner side of the breast. Part of such a flap may perish but enough usually survives for one's purpose. Towards the end of this lecture I will try to describe how to do this operation. (See Fig. 19.)

In dealing with cicatricial contractions such as follow burns and scalds, to obtain the best cosmetic results, it is required to remove the cicatrices altogether, not simply to divide them. (See Fig. 10.) The large wound thus made has then a base and edges of normal tissue, which can be completely fitted with sound and elastic natural skin. Soft, white, and thick skin placed as a patch in the middle of a tense, thin, bluish, puckered cicatrix forms a contrast which itself amounts to a disfigurement. This should be particularly borne in mind in dealing with the face and the hands. In treating cicatricial contraction of more concealed parts, such as the popliteal space, one need not be so careful to remove the scar tissue, but it should at least be cut in two down to its base and the parts widely separated. (See Fig. 1.)

FIG. 10.

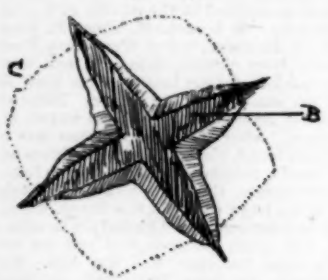


Fig. 10 represents a cicatrix to be removed. It may be divided crucially and completely, right down to the normal, non-cicatricial tissue, B, beneath it. Then the four quarters should be dissected clean away centrifugally. This will be found more convenient than dissecting from the circumference to the centre.

Thiersch's grafts are of limited value as a means of permanently preventing cicatricial contraction. The whole thickness of the skin is more effective. And even when the whole thickness of the skin is used much care is required to prevent a certain amount of contraction taking place. I think it occurs in the early days before the plastic bond of union between the two surfaces is completely organised. Hence, if one takes a case of syndactyly, divides the web and supplements the skin of the web with Thiersch's grafts, the contraction ultimately will be so marked as to nullify the operation by half. If one uses Wolfe's grafts it will be less. But even if one attaches the hand to the flank and uses a pedicled flap an elementary web will return. It is advisable that the fingers should be split half an inch higher than the natural web. Suturing the skin of the dorsum to the skin of the palm at the apex of the separation is totally inefficient of itself to prevent the defect under consideration. It is the contraction in a longitudinal direction between the roots and the tips of the fingers which does the mischief.

Subcutaneous fat is essential for the best result in certain circumstances, especially where free mobility is required. The deep fascia beneath it is to be spared if possible, but

FIG. 11.

A penis covered with skin taken from the scrotum.

should a little of it be accidentally taken away no great harm seems to result.

I have already mentioned what a storehouse of spare skin is to be found in the axilla, a happy circumstance in relation to modern operations for cancer of the breast. Another similar storehouse is the scrotum and, in a minor degree, the prepuce. The scalp has been "papered" with prepuces, in at least one case, I am told, the female scalp. The skin of the penis having sloughed in a case of extravasation of urine the dorsum of the penis adhered tightly to the front of the pubes. This not only made urination difficult and sexual intercourse impossible but also the patient was the subject of an old stricture and, with the penis fixed against the pubes, it was next to impossible to pass a bougie. To form a new skin for the penis a flap was taken from the scrotum (see Fig. 11). The patient was under the care of Dr. Richard F. Starkie.

Operation for hypospadias.—I have many times at the West London Hospital and in private performed and demonstrated the following operation for hypospadias which I devised and first practised successfully on May 18th, 1895, assisted by Mr. R. W. Lloyd and Mr. H. G. Wharry, in a case under the care of Dr. John Duncan of St. Petersburg, after several operations had been practised unsuccessfully in that city. 1. A suprapubic drain is placed in the bladder. 2. Two rectangular skin flaps having broad bases towards the median line and on the under surface of the penis are reflected inwards. When united these two form a lining for the new urethra and their raw surfaces are outwards. 3. To cover these raw surfaces a square flap is cut from the prepuce in the following manner. The prepuce on the dorsal aspect of the penis is unfolded and everted. Then a quadrangular flap is cut through that skin layer of it which is next the glans penis, the distal border of the flap being placed near the corona glandis. This flap is turned up from the superficial layer of preputial skin. The result, of course, is a raw surface of twice the size of the flap marked out to begin with. A small longitudinal "button-hole" is cut in this dorsal part of the prepuce, close to the corona glandis and the glans penis is passed like a button through this "button-hole." The preputial flap then falls over the raw surfaces of the under flaps which were cut to begin with and is sutured in position. 4. When a week has elapsed the preputial flap is cut free from its base and any point of leakage is looked for and remedied.

Notes.—A. The two first-mentioned rectangular flaps should not be quite separate near the opening of the hypospadiac urethra but should be continuous round the scrotal margin

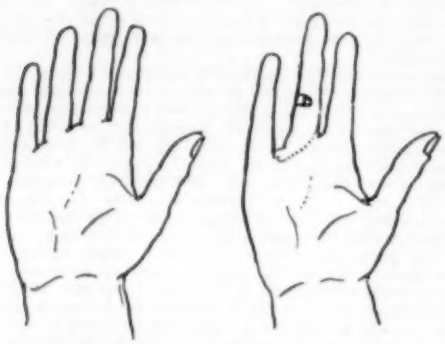
of the opening, so that together they look like a flat horse-shoe magnet. Then the outer margin of this flat horse-shoe is "gathered up" by the suture. B. This suture should be single and very simple, so as to be easily removeable. There is not enough substance in such flaps to absorb catgut knots. A single piece of silkworm gut, passed in and out so as to form a figure of 8, with the ends emerging under the glans penis, suffices. C. In reflecting the transverse part of the magnet-shaped flap great care must be used because of the thinness of the floor of the urethra near the hypospadiac opening in most of these cases.

In "Heath's Dictionary of Surgery" Mr. John Wood pointed out that the prepuce could be used in operating for hypospadias but his mode of using it would be likely to fail, I think, for the following reasons: (1) he makes no suprapubic drain; (2) he cuts the preputial flap after button-holing the prepuce; (3) he makes this aperture transverse; (4) he does not unite the under flaps round the hypospadiac meatus; and (5) he does not suture after the fashion described in Note B (above). These points are essential if the operator is to expect success.

A moderate amount of skin can be taken from the trunk of even the tightest-skinned person, enough to fill up defects in the hand and fingers. Much more can be spared by older people with lax abdomens and the skin hanging in folds. Sometimes the surgeon can act on the principle that one fairly complete organ is better than two seriously incomplete, just as a poor mother might put one child to bed and send the other to school in clothes partly borrowed from his brother rather than keep both idle and half clad at home. A young woman came into the West London Hospital with all the fingers of the right hand crushed, torn, and on the palmar surface burnt by the hot roller of a machine mangle. Nearly every interphalangeal joint was open on the palmar aspect. All the flexor tendons of the middle and ring fingers were destroyed. But their dorsal tendons were intact. I therefore amputated the ring finger, preserving all its dorsal soft structures. These being then brought round and fixed to the previously refreshed palmar surface of the phalanges and joints of the middle finger, the extensors of the ring finger assumed the duties of flexors of the middle finger. The results both as regards appearance and function were surprisingly good (see Figs. 12 and 13). In Fig. 13, D marks the back of the ring finger transferred to the palmar side of the middle finger.

Other examples of the application of this principle are

FIG. 12. FIG. 13.



Diagrammatic sketches of the hand of a girl before and after the dorsal tendons of the ring finger had been used to supply the place of the palmar tissues of the middle finger. The palmar tissues of both fingers had been destroyed.

given by plastic amputations of the foot (see Figs. 4 to 9). A middle-aged man was taken into the West London Hospital for amputation of a leg, most of the skin of which was destroyed by a chronic ulcer. It occurred to me that if I used the soft structures of the whole sole of the foot to cover the skin I might simply excise the ulcer, amputate a little way above the ankle, cover the end of the stump with the heel-flap, and get that best of all stumps, a "Syme." (The original intention, of course, had been to amputate at, or below, the knee.) The success of the plan was perfect. The case was reported in THE LANCET of Nov. 28th, 1885, p. 967. Professor Rydigier of Cracow has proposed to modify this operation in exactly the same way in which Pirogoff modified Syme's amputation, saying, among other things, that a longer stump can be obtained. But it must be remembered that the more the os calcis is preserved the more the tibia

FIG. 14. FIG. 15.

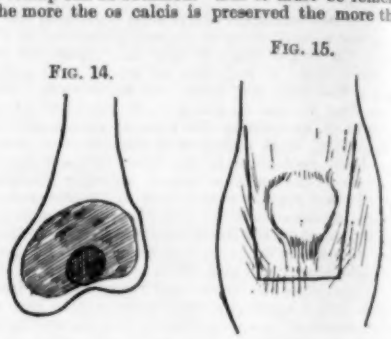
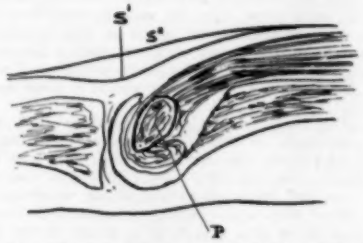


FIG. 16.



These figures illustrate the case in which the patella and surrounding tissues were used to fill up the cavity left by hollowing out the tuberculous lower end of a femur.

must be sacrificed, unless the original ulcer is almost too small to justify such an operation at all.

It should be noticed that in the last-quoted example it was not merely the skin but also the subjacent muscular and even osseous structure which were transferred. This principle can be applied in the middle of a limb as well as at its extremity. A housemaid, about 28 years of age, a patient of Dr. Johnston, late of Wentworth Fitzwilliam, had long suffered from chronic disease of one knee-joint. An operation had left fistulæ leading from each side into the centre of the condyles of the femur. These condyles had been a shell of bone filled with cheesy matter of an orange-yellow colour. After this cheesy matter was removed and the knee-joint found, though filled with fibrous adhesions and with the patella ankylosed by bone to the femur, to be free from active disease, the above-mentioned fistulæ were left. They led to the large cavity in the femur, which discharged freely and had not contracted materially in spite of packing, drainage, and much patience exercised for months. The patient's general condition was very bad. She was weak and emaciated. On Sept. 16th, 1902, the patella and the quadriceps above and around it were exposed, the ligamentum patellæ was cut through transversely, and a thick quadrangular flap of aponeurosis, muscle, and ligament containing the patella turned up so as to expose the front of the condyles. These were then completely hollowed out till the femur resembled a deep spoon. The flap was then sunk into the hollow formed by gouging and scraping the condyles. Healing was complete in a fortnight. The patient's general health improved at once. Even the day after operation her face had assumed a bright and healthy look. She has several degrees of movement and has for some time filled a housekeeper's place. (See Figs. 14, 15, and 16, in which P represents the buried patella, S' the level of the skin immediately after operation, and S'' its level now.) In this case it was of prime importance to obtain quick healing. Prolonged granulation and suppuration in such cases generally mean not only injury to the general health but also recurrence of the disease.

THE VALUE OF THIERSCH'S GRAFTS IN THE TREATMENT OF BONE AND JOINT DISEASE.

Six years ago I had to treat a curious case of ulcer of the leg. At first this may have originated in varicose veins from which the patient, a middle-aged man, suffered severely, but the diseased process had penetrated the upper end and also the middle of the shaft of the tibia very deeply. The surrounding skin was blue and the fat as soft as ground rice. A blunt spoon easily scraped away large quantities of diseased skin, fat, and disintegrated bone. I cut away every obviously unsound portion of hard and soft tissue, leaving an apparently healthy surface. The result was two long cavities in the tibia, so deep that they all but completely penetrated the bone from the shin to its posterior aspect. Experience shows that, under ordinary treatment, such cavities take months to heal and that, in the meantime, diseased processes are apt to start again in them. Accordingly, surgeons have sunk flaps of soft tissue into them to fill them up. I have tried this plan myself with fair success but it is not an ideal plan for various reasons. On this occasion I simply lined (papered as it were) the cavities with Thiersch's grafts. Healing was immediate, except at one small deep point near the bottom of the cavity in the middle of the tibia. (See Fig. 17.) At the same time I performed Trendelenburg's operation for the varicose veins in both limbs. The point which escaped the scraping and grafting afterwards formed the starting point for further mischief, like the original in character, though of not one-twentieth the extent, and led to further operations. On each of these occasions, after successfully grafting, I put the patient through a course of iodide of potassium. I was not able to determine the character of the growth microscopically. There was no syphilitic history; but the iodide did good and, of itself, healed one point which broke out afresh. The recurrence did not begin in the part grafted. Unfortunately, the patient was last summer attacked with extensive glandular enlargement in the groin. I have removed the glands; they appeared to be epitheliomatous; but at present (February, 1905) there has been no recurrence. The leg apparently remains quite well and the cavities lined with Thiersch's grafts are only a third of their original depth. Here sound bone has formed and lifted the grafted skin towards the general surface of the limb without loosening it in any way. I have performed this operation now on a number of bone cases, mostly tuberculous, and have nearly always had the same result in the way of quick healing and, except in the case first described, have had no glandular trouble.

FIG. 17.

Diagram to indicate the depth of cavities in the tibia which were lined with Thiersch's grafts. The straight and broken lines show the depth a year after operation.

I believe it may be laid down as a law that *skin grafts have in some way a property of inhibiting the recurrence of specific ulcerations of the bones and muscles, as well as of the skin, and that this applies not only to tubercle but to epithelioma and to leprosy.* Of course, the local disease should be carefully removed first; but, locally at least, success may be expected even if the general system still remains infected. Dr. Robert J. Colenso, Dr. Robert Moir, and I treated by excision and skin-grafting an ulcer as large as the palm of the hand on the outer side of the knee of a male, with various other troubles due to leprosy contracted in the East. The result was a speedy healing, which has not broken down to this day (seven years after the operation). At the same time that I was operating in this way on the larger bones of the limbs and, as I shall show presently, on the joints also, Mr. C. A. Ballance was working independently in a similar manner on the temporal bone for the cure of middle-ear disease.

It then seemed to me that a similar method might be employed to prevent the formation of those chronic sinuses which often follow operations on diseased joints, which are so difficult to cure, and inflict so much suffering, inconvenience, and even danger on the patient. On Sept. 13th, 1900, I resected a suppurating tuberculous hip in a girl, seven years of age, at the West London Hospital. A sinus remained and in a short time not only this sinus but an area around it of the size of the palm of the hand became infiltrated with tubercle. The infiltration involved skin, subcutaneous fat, and intermuscular spaces, if not muscles. Accordingly, on Oct. 23rd I operated again, took pains to remove the disease and made a large wound, partly superficial, partly deep, extending down to the bare bone left by the resection of the hip. I lined this wound, and especially the deep, funnel-shaped part of it which led to the bone, with Thiersch's grafts which overlapped the bone. The deep part of the wound healed at once, even in a few days. The superficial part, where some of the grafts had slipped and not taken perfectly, had to be regrafted in parts. The patient was shown at the Medical Society of London on Feb. 10th, 1902.[2] I see her occasionally and in the four years she has had no recurrence of tubercle, either locally or elsewhere. I have repeated this operation on various patients, one of them a child with disease of both hips, always with ultimate success and generally with immediate success.

FIG. 18.

The leg of a young girl on whom I operated several years ago for caries of the os calcis with the help of Mr. Sidney E. Tench of Brixton and Mr. A. Tanner Cooper. The greater part of the os calcis was scraped and gouged out and the cavity lined with Thiersch's grafts which adhered at once. The large cavity resulting rapidly filled up, leaving merely the small dry depression shown in the illustration. The functional result was perfect.

Failure can easily be traced to one or other of the following causes: (1) neglecting to line the cavity in the soft tissues completely, that is, leaving a granulating and discharging surface; (2) neglecting to dress the wound at the proper time, or dressing roughly and disturbing the grafts; and (3) leaving a sequestrum or much diseased bone at the bottom of the grafted wound. These mistakes can be rectified by another operation, but it is, of course, better to avoid them.

The mode of treatment described affords an escape from the dilemma in which the drainage tube is apt to place us, the dilemma in which, if the tube is removed, a sinus refuses to heal from the bottom, while, if the tube is left, it necessarily keeps up a discharging sinus, liable to be reinfected with tubercle if not already infected. What is exceedingly striking in watching the after-course of a case of this kind is the way in which the grafted deep wound diminishes in size, not only in width but also in depth. After a few months a wound which when first grafted and

[2] Transactions of the Medical Society of London, vol. xxv., p. 335.

for some days after reached into the hip-joint may only admit the point of a probe for about half an inch. The little sinus is quite dry and still obviously lined with Thiersch's grafts.

It is obvious that one lecture on plastic surgery of an hour's duration cannot be made exhaustive, even if one speaks only of the plastic surgery of the skin. Before concluding with a few remarks on technique I should like to refer to

TRANSPLANTING AND GRAFTING MUCOUS MEMBRANE.

Twenty years ago I inherited from my senior at the West London Hospital, that distinguished specialist in urinary surgery the late Mr. Teevan, a case of urethral stricture which was in several ways remarkable. He had had median perineal cystotomy performed several times, once to remove a foreign body, the broken off end of a catheter. The patient himself once seen could never be forgotten; his hair was of a bright orange colour with a tinge of crimson, due to his work in a colour factory. Having for the second or third time to rescue him from retention by a perineal division of a mass of cicatrix containing no traceable urethra I on the last occasion took a rectangular transplant of about one and a half inches by two inches of mucous membrane from the rectum, close to where it passes into skin. With the finest catgut I sewed this, raw surface outwards, over a No. 12 rubber catheter. I then passed the catheter through the perineal wound, half of it into the bladder and half of it through the penile urethra. After a week the catheter was removed. A careful watch was kept but no trace of the graft was ever seen again and the patient never required operation again. Some years afterwards a message came that he had been taken dangerously ill. He died almost immediately. My house surgeon, Mr. H. Scott Elliott, made a post-mortem examination under great difficulties. It was the depth of a hard winter. The body lay frozen hard throughout in a cottage. He brought home the specimen, but when examined the urethral part stopped short just behind the seat of the stricture!

I have had the opportunity of repeating this operation in a manner varied so as to enable me to see and to demonstrate the adhesion of the graft of rectal mucous membrane to the site of a resected mass of urethral granulations and cicatricial tissue. In this case I kept the perineal wound open by gauze packing until the grafts had visibly adhered.

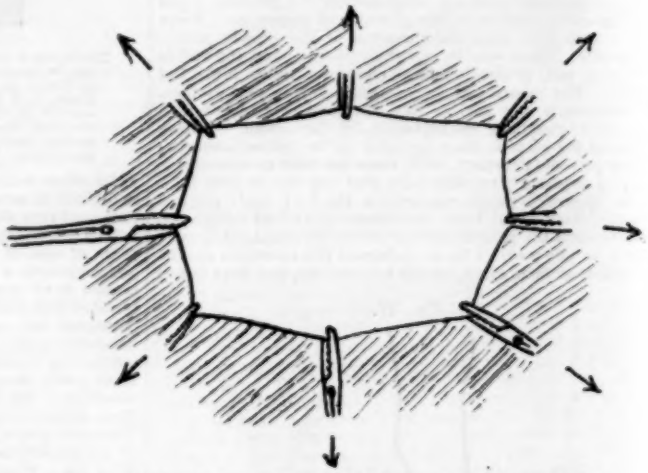
THE QUESTION OF ANTISEPTIC *v.* ASEPTIC METHODS IN PLASTIC SURGERY.

I may claim to have been one of the first to point out the desirability of keeping chemical antiseptic lotions away from grafts and using warm water instead.[3] Warm solution of common salt ("neutral saline") is an improvement on plain water. But frequently now the importance of this detail of practice is greatly exaggerated. Neither Thiersch's grafts nor flaps are seriously injured, much less killed, by contact for a short time with the lotions ordinarily used in antiseptic surgery, such, for example, as 1 in 2000 perchloride of mercury. I cut my grafts with a blade which has been boiled but with its edge protected by lint or cotton-wool. All the gauze dressings (often the swabs as well) have been wrung out of 1 in 2000 perchloride lotion. For certain reasons, more especially because it confuses nurses to change the mode of dressing with the class of operation, I find it more convenient to use this technique, although I acknowledge that salt solution is preferable in the abstract, and, indeed, I use it when any "floating" or douching is required. The knife is not blunted and the grafts are not killed.

The great enemy to successful plastic surgery is not antisepsis but sepsis. A graft bathed in pus will not adhere and live. This must be carefully remembered in the after-treatment. When one feels assured that the wound is aseptic the first dressing may be postponed for a week and the graft should be found alive and firmly fixed. But if there is danger of suppuration the dressing should be daily and a free passage for the escape of pus must be provided. This daily dressing must be done with great delicacy.

The surface to be grafted may be perfectly fresh, or thinly coated with fresh, bright, and healthy granulations. As a rule it is best to scrape away the granulations. The surface should be prepared first and bleeding from it staunched by pressure while the grafts are being cut. But grafts have themselves a hæmostatic action. When blood is effused beneath a graft it should be pressed out with a swab and with some flat, smooth, metallic instrument placed between the swab and the graft, otherwise the swab will bring the graft away. A single layer of gauze serves as a protective. More gauze is placed on the top of it and removed independently at the next dressing. Cotton-wool should be used extravagantly to prevent rubbing and, if necessary, pads to prevent pressure. When pedicled flaps are transplanted they should be fixed (1) by sutures of the edges; (2) by supplementary and very stout sutures near but not in the base of the flaps (thick silver may be used for these); (3) by strapping; and (4) by plaster-of-Paris. Plaster-of-Paris not only tends to give a better final result but greatly prevents pain, though it sometimes gets in the way of dressing. At the separating operation a trustworthy assistant should hold the parts together—e.g., the limb to the trunk—until not so much as a hair's breadth of the pedicle remains undivided. A premature movement at this moment may do irretrievable damage. Before forming the flap a pattern of its size and shape may be cut in green protective or in boiled rubber sheeting. The patient's own blood serves for a red ink to mark out the flap. After a pedicled flap is cut free it generally requires careful readjustment and the insertion of fresh sutures.

FIG. 19



Forceps arranged round a free skin flap to take the "curl" out of it and facilitate removal of fat.

With regard to Thiersch's grafts, a concave-edged amputating knife does well for cutting them. A broad metal spatula is generally convenient for transferring them. An excellent substitute is a tablespoon. The graft should be placed in the concavity of the spoon. A much larger graft can be spread out on it than on a spatula. For lining a narrow cavity a teaspoon or eggspoon may be useful. In lining a deep cavity with grafts the point end of the knife itself may have to be used to carry the grafts in. Do the Thiersch's grafting thoroughly. Do not leave small uncovered angles and intervals.

Now with regard to *transplants of the whole thickness of the skin* transferred without any pedicle. After cutting such a graft out arrange half a dozen catch forceps around its edges. (Fig. 19.) Place it, raw surface upwards, on a sterilised towel and a convex surface, usually a part of the patient—e.g., his thighs or chest. Have the flap well stretched in

[3] Notes on Plastic Surgery, Annals of Surgery, 1887, vol. vi., p. 97.

every direction by pulling at the forceps. Shave off all the fat. Stretch the flap again (to take the elasticity and tendency to curl up out of it). Swing it into place. Secure it with a few sutures. But cut away all the forceps so as to leave no bruised skin behind. The most rigid asepsis is desirable to insure success in this operation, and the more vascular the part grafted the better, of course.

TRANSPLANTATION BY EXCHANGE.

When a large hairy mole has to be removed from the face it can be exchanged with a piece of skin of the same size and shape taken from the arm. Stout sutures should anchor the mole to the arm. Only very delicate sutures will then be needed to adjust the arm skin to the face.[4]

I have directed attention almost entirely to the transplantation and grafting of skin and mucous membrane and of structures attached to them. It is, of course, well known that every tissue of the body is transferable and that there is a plastic surgery of muscle, tendon, bone, nerve, blood-vessel, omentum, intestine, stomach, liver, kidney, and other deep parts, which has already a large literature and concerning which much more remains to be written.

Grosvenor-street, W.

THE TREATMENT OF SEVERE CURVATURES IN THE TIBIÆ BY MEANS OF MANUAL OSTEOCLASIS.

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HAVING during the past two years thoroughly tested this method of treatment I venture to bring it to the notice of the profession as a rapid, permanent, and complete cure of pronounced rickety curvatures in the tibiæ. Of some 30 or more cases which I have treated by this method the following, which I had photographed and skiagraphed both before and after treatment, is a typical example.

A girl, aged four years, was brought to me at the London Hospital on Sept. 9th, 1904, with well-marked curved tibiæ, enlarged epiphyses, rickety rosary, and other signs of recent rickets. She had been breast-fed for one year and only walked at the age of three years. Fig. 1 (reproduced from a photograph taken on Oct. 7th) shows both tibiæ so extravagantly curved that a line continuing the anterior border of the upper two-thirds of each tibia falls outside the corresponding foot. Fig. 2 (reproduced from a skiagraph of the leg bones taken on Oct. 7th) shows the tibia so curved that the inferior surface of its lower extremity is directed inwards. On Oct. 20th manual osteoclasis of the left leg was performed, two lateral splints were applied, and the child was sent home. She was brought for inspection the next day. The circulation of the foot being good and no pain being complained of the splints were left undisturbed and a skiagraph of the leg (Fig. 4) was taken. The child was seen a week later, on the 28th, and the splints were re-adjusted. On Nov. 11th the splints were removed and the child's legs were photographed in the standing position as seen in Fig. 3. In this photograph the left leg is straight, the right presenting the same extravagant curve as before.

FIG. 1.

The patient, aged four years. Oct. 7th, 1904.

FIG. 2.

Oct. 7th, 1904. Reproduction of skiagraph of tibia and fibula (left).

Operation.—With the child fully anæsthetised, the leg is encased in cotton wool and bandaged. The child is then turned over so that the leg which is to be broken lies on its outer side. A wedge-shaped block, measuring some seven inches by three inches at the base and six inches high, is used. The upper edge of this block is about one inch wide and four inches long and is covered with thick indiarubber. This block is put underneath the leg transversely at the

[4] THE LANCET, Nov. 22nd, 1902, and Feb. 19th, 1887.

centre of the curve. The operator with one hand grasps firmly the foot and ankle and lower portion of the tibia and with the other hand the upper part of the tibia, the hands of the operator being some two to three inches apart. With the block resting quite firmly

FIG. 3.

The patient. Nov. 11th, 1904.

upon a firm table, and the child's leg on the rubber-covered upper edge of the block, with a steady and increasing pressure exerted through the hands of the operator, the bones of the leg are snapped across and the leg can then immediately and easily be made to assume a straight position. In a few instances the fibula can be heard to crack first but in the majority of cases the fibula is simply bent and the tibia alone is broken. In the case of some 40 legs which I have operated upon in this manner no bruising of tissue, laceration of skin, or other untoward result has occurred. The limb has been put up in two lateral well-padded wooden splints, bandaged, and the child sent home immediately on recovering from the anæsthetic.

The line of fracture in nearly every case is transverse, in a few it is oblique, and in a few irregular in outline. The fracture in the tibia is situated at the exact spot where it is necessary that the bone should be broken in order that the leg can be made to assume a straight position. The act of stretching the bone into a straight position puts tension upon the bone at the exact spot where it is necessary that it should be fractured. The fracture gapes and the fractured surfaces are separated to an extent just sufficient to permit the bone to become straight. This wedge-shaped separation of the fractured surfaces actually increases the length of the bone and corrects the shortening due to the curvature. The bone is lengthened proportionately to the length of the base of this wedge-shaped cleft. The more the bone is curved the thicker is the wedge-shaped cleft and the greater the consequent lengthening. The periosteum on the convex side of the bone is unbroken and it is doubtful whether the periosteum on the concave side of the bone is more than lacerated and stretched.

The repair of this fracture is exceedingly rapid. I have x ray photographs showing complete obliteration of the line of fracture, in one case in six weeks after the manual osteoclasis was performed; whereas in an ordinary fracture of an adult tibia it is often possible by the x rays to make out the line of fracture some 12 months after the date of fracture. The advantage of this method of treating pronounced curvatures in the tibia as compared with the prolonged application of straight wooden splints to the inner side of the legs, or the use of complicated and expensive surgical appliances, must be obvious. It is no uncommon occurrence for splints to be worn for six or 12 months and in some cases for an apparatus to be worn for years, whereas by manual osteoclasis the patient's legs are straightened at once and the patient is made to walk about quite well with straight legs in from three to four weeks.

FIG. 4.

Reproduction of skiagraph taken on Oct. 21st, 1904, the day after manual osteoclasis.

Compared with cuneiform osteotomy, in my opinion, manual osteoclasis is far superior. In the first place, the bone is broken exactly at the spot and along the plane which is absolutely the proper one in order to allow the bone to become straight. It is impossible precisely to ascertain where this plane is situated until the bone has been broken. It is only by straightening the bone and allowing it to break that the proper line of fracture can be determined. Every operator knows how difficult it is to remove by cuneiform osteotomy exactly the proper-sized wedge and to remove it from exactly the correct plane in the bone. Secondly, the bone is lengthened instead of being shortened by the excision of a wedge-shaped portion. Thirdly, instead of an open wound with much damaged bone and periosteum a simple intraperiosteal greenstick

fracture is produced which is firmly healed and permits the child to walk in three weeks. Fourthly, the operation can be performed and the child treated as an out-patient.

It may be asked, Is it always necessary that the bone should be broken? In my opinion it is imperative that the bone should be broken before the leg will remain straight. For over a year I had under observation one child whose right leg I endeavoured to straighten by manipulation without breaking the bone, but after a year's splinting and repeated manipulations the right leg was still considerably curved and had to be broken and straightened. It is therefore, in my opinion, always essential that the tibia should be broken by manipulation. The leg cannot otherwise be straightened. On three occasions I have used this method of straightening a leg which had become deformed as the result of a fall some years after cuneiform osteotomy. The eldest child so straightened was aged 12 years. It is obvious that there is an age-limit beyond which it is impossible to fracture the leg by manual manipulation, but in my opinion the leg of any child under ten years of age may be so broken where necessary.

Wimpole-street, W.

THE CAUSE OF PAIN IN CASES OF GASTRIC ULCER AND ITS BEARING UPON THE OPERATION OF GASTRO-JEJUNOSTOMY.

BY C. W. MANSELL MOULLIN, F.R.C.S. ENG.,
SENIOR SURGEON AND LECTURER ON SURGERY AT THE LONDON HOSPITAL.

THE walls of the stomach have no sensory nerves; that is to say, no nerves capable of exciting that part of the nervous system which is concerned with the sensation of pain. This has been proved by the method of operating under local anæsthesia. They may be cut or crushed or burnt without exciting the slightest feeling. And it is well known that a gastric ulcer may develop without causing pain or any other symptom until the barrier gives way and the contents of the stomach escape into the peritoneal cavity. On the other hand, it is no less certain that dyspepsia and gastric ulcer are usually attended by severe suffering and that not only is there pain but often great tenderness as well, both deep and superficial. There must be a reason for this difference and it seems to me that the reason is of some clinical significance. In gastric surgery what is wanted more than anything else is greater accuracy of diagnosis and everything that can assist in diagnosis is of value.

The characteristic pain of gastric ulcer comes on shortly after the food has entered the stomach, grows worse and worse as digestion goes on, and then gradually becomes less severe as the stomach empties itself. Vomiting often relieves it at once. Exceptionally it begins later and in a few rare instances it is stated that it is relieved by taking food. It is clear that pain of this character is not due to contact of food with the mucous surface, for it has been shown on many occasions that stimuli of this kind do not cause any sensation at all; and that it is not due directly to increased acidity, for it has been proved that acids much stronger than those ever formed in dyspepsia or gastric ulcer may be applied to the mucous surface of the stomach without the patient being aware of it. The same thing is true of the products of digestion. Nothing that is formed in the stomach can cause pain by contact with its walls. The only way in which the act of digestion can cause pain is by the movement of the stomach affecting the sensory nerves distributed around it; and there is abundant evidence to show that this is the chief, if not the sole, agent. Sensory nerves, derived from the intercostals, are distributed in abundance in the parietal peritoneum, or rather in the subserous cellular tissue that underlies it. The least drag upon this is instantly resented. If the patient is under an anæsthetic the heart and the respiration show the effect at once. In one instance under my care, in which the walls of the stomach were peculiarly hard and rigid (leather bottle stomach), I had for this reason alone to abandon the operation I had proposed and content myself simply with an exploratory laparotomy. Respiration stopped at once when the least traction was made upon the stomach. If the patient is not under general anæsthesia there is an immediate complaint of pain. The painless ulcer that forms almost without a symptom and suddenly ruptures into the general peritoneal cavity is nearly always situated on the anterior surface far away from the parietal peritoneum and the sensory nerves. The ulcer that causes the most suffering is either on the lesser curvature or at the pylorus, unless it has already contracted adhesions to the parietal peritoneum elsewhere, so that it can drag upon it directly, and the pain increases as the movements of the stomach become more energetic during digestion and ceases when they do. Whether there are other accessory causes or not, there can be no question that dragging upon the parietal peritoneum as the stomach moves during the process of digestion is the chief source of the pain in cases of dyspepsia and gastric ulcer.

The reason for the intensity of the pain in so many cases of gastric ulcer is made clear in the same way. Inflammation, starting from the lymphatics that drain the region of the ulcer, spreads to the parietal peritoneum and makes it infinitely more sensitive. Just as when the appendix is inflamed the parietal peritoneum, which is continuous with its mesentery and in communication with its lymphatics, becomes so sensitive that the faintest pressure upon the abdominal wall causes acute pain, so it is with the stomach. The lymphatics, which drain the greater part of its wall, converge towards the pylorus and the lesser curvature. Whenever there is an inflamed area on the mucous surface, or a sore that is irritated by contact with the acid gastric juice, these lymphatics and the parietal peritoneum in connexion with them become inflamed. The inflammation may not be severe, though from the frequency with which thickening of the peritoneum, adhesions, and enlarged glands are found in operations upon this region it is certainly more general than is usually imagined, but it is quite sufficient to render the attachments of the stomach more sensitive and to make the least pull upon them more painful than it was before. As the cause of the pain in gastric ulcer is the movement of the stomach it naturally follows that it is felt most severely when the pyloric end is at work. The cardiac end of the stomach is not in such close relation with the parietal peritoneum and, in comparison, is almost a passive receptacle. The pyloric end is much more muscular and energetic. In some instances the contraction of the pylorus itself is the immediate agent. Jedlicka,[1] for example, describes spasmodic contraction of the pylorus as present in the majority of the cases of gastric ulcer associated with hyper-acidity that were operated upon in Maydl's clinic. In others it is the contraction of that ill-defined but strong band of muscular fibres which surrounds the prepyloric region of the stomach and separates the antrum pylori from the rest. Jedlicka in some of his cases describes this band as so much hypertrophied that when divided its cut surface was considerably greater than that of the pylorus. In several instances I have found the same and in one case under my care section of these fibres (simple gastrotomy) effected a cure which seems as if it would be permanent. The patient, a man, 39 years of age, had suffered from pain and vomiting after food for three years and had had four attacks of hæmatemesis, the two latest of which were serious. When the stomach was opened neither ulcer nor scar was found. All that was done was to divide this portion of the wall of the stomach freely for the purpose of inspecting the interior. The incision was sewn up again and from that time the pain and vomiting ceased. Now, nearly four years after, the patient reports himself as still anæmic but except for that as well as he ever has been in his life. In most of my cases, however, the contraction has not been confined to one or other of these parts but has involved the whole of this region. It is very difficult to say what may be the normal size and thickness of the pyloric part of the stomach under varying conditions but I am convinced that in a large proportion of the cases in which I have operated for gastric ulcer it has been much thicker than it ought to have been, especially in cases in which there was no marked degree of stenosis beyond.

What is true of the pain in cases of gastric ulcer is also true of tenderness on deep pressure. (The cutaneous hyperæsthesia so often present in this disorder is merely the expression of the irritability of the nerve centres kept up by stimuli reaching them from the visceral nerves.) Tenderness on deep pressure is a measure of the sensitiveness of

[1] Zär Operativen Behandlung des Chronischen Magengeschwürs.

the parietal peritoneum. It means that this is in a state of active hyperæmia, or even of slight inflammation, kept up by irritation conveyed to it from the affected area on the wall of the stomach. Naturally, in the majority of instances the tenderness is greatest in the epigastrium, either in the middle line or slightly towards the right, for this corresponds approximately with the lesser curvature. When it is definitely localised elsewhere and persistent it usually indicates adhesion to the abdominal wall and if it is in the front the tenderness is often associated with contraction of the corresponding segment of the rectus.

This is not merely an academic consideration. It has a very important bearing upon the ultimate success of the operation for gastro-jejunostomy. The object of this operation, when it is performed for chronic gastric ulcer, is to drain the stomach and place it at rest. If this can be accomplished the vomiting and pain cease. If the pain continues it means that there is still dragging upon the sensory nerves under the parietal peritoneum around and that the operation has failed in one important particular. To accomplish this in all cases is no easy matter. If the ulcer is comparatively small, so that it can be excised and merely a thin linear cicatrix left without any puckered bands or adhesions, success is fairly certain. But in the majority of cases, by the time a surgeon is allowed to operate course after course of medical treatment has been tried and has failed and the wall of the stomach has become so far involved that excision of the ulcer means a fairly large gastrectomy. In such cases there is usually no option if gastro-jejunostomy is contemplated. The opening in the stomach must be made where it can be. But when there is a choice the opening should either be made quite at the cardiac end, so that the pyloric portion has no work to do; or if it is made near the pylorus there must be a very free division of the circular muscular fibres, as in the case of simple gastrotomy I have mentioned already. It does not matter so far as the stomach is concerned (the relation of the jejunal loop to the colon is a different question) whether the opening is made upon the anterior or the posterior surface; the weight of the bowel very soon drags it down into the most dependent position. But it is of the greatest importance for ultimate success either that the stomach should be prevented from doing any energetic work or, if this cannot be managed, that it should be prevented from dragging upon the parietal peritoneum by dividing either the fibres that enable it to do so or the peritoneal adhesions.

I have recently been engaged in tracing out the after-history of patients upon whom I have operated for various disorders in connexion with the stomach from two to ten years ago and I have been very much struck with the conspicuous absence of pain in some of the worst cases in which, owing to the presence of adhesions, I had been compelled to make the gastric opening quite at the cardiac end, a situation usually regarded as inadvisable. The reason, I think, is obvious. The pyloric portion ceases to contract or do any work if the opening is sufficiently free and the stomach no longer drags upon the sensory nerves in the parietal peritoneum.

Wimpole-street, W.

A CASE OF

RECURRENT OR SUCCESSIVE OVARIAN PAPILLOMA WITH SEQUENT VENTRAL HERNIA,

FOLLOWED BY CERVICAL EPITHELIOMA; TWO ABDOMINAL CŒLIOTOMIES; OPERATION FOR VENTRAL HERNIA; VAGINAL HYSTERECTOMY; RECOVERY.

BY E. STANMORE BISHOP, F.R.C.S. ENG.,
HONORARY SURGEON TO ANCOATS HOSPITAL, MANCHESTER.

IT is not often that any one surgeon is able to follow a case of this kind in its entirety, as patients so frequently change their attendants if one operation is followed by the necessity for another. It is therefore fortunate that in this instance it has been possible to record an unbroken series of events.

The patient was a widow, her husband having been dead 14 years before the first operation. She was a florid, stout woman and had had three children but no miscarriages. Menstruation had always been regular until August, 1898. She had always had pain for one or two days before each period, this passing off when the flow was established. In July, 1898, she consulted Mr. G. Knapton of this city for certain symptoms, when he discovered a tumour in the abdomen which appeared to be ovarian. In the middle of August of the same year whilst standing at the top of a flight of stairs she became giddy and fell to the bottom. Up to this time she had not herself noticed much increase in the size of the abdomen but now it began to increase rapidly and Mr. Knapton found that the defined swelling noted before had disappeared, whilst in its place the abdomen contained a much larger amount of free fluid. Various other changes were also apparent. Whereas previously the menses had recurred once every month, they now were seen every fortnight, whilst constant aching pain in the hips and sacral region was observed.

In November, 1898, the abdomen being greatly distended, she was tapped by Mr. Knapton who removed in this way three and a half gallons of clear amber viscid fluid. Before this there had been frequent desire to urinate, especially at night, associated with some difficulty. After the tapping this symptom disappeared. On Nov. 29th, 1898, I was requested to see her with Mr. Knapton in consequence of the rapid recurrence of distension with fluid. The circumference at the level of the umbilicus was 45½ inches. The vertical measurement from the pubes to the umbilicus was eight inches and from the umbilicus to the xiphoid cartilage 18 inches. The abdomen was somewhat pendulous. Percussion showed free fluid which moved somewhat slowly on change of position. The pulse was 108 and the respirations were 24. The last period finished on Nov. 11th, having lasted four days.

On Nov. 30th, the patient being in the dorsal position, a median incision was made between the umbilicus and the pubes, passing through the left rectus muscle, the fibres of which were bluntly separated by the handle of the knife. On opening the peritoneum there was an immediate gush of viscid—almost mucilaginous—amber fluid; loops of small intestine and thickened, lumpy omentum protruded. After a large quantity—several quarts—of fluid had escaped, the hand was introduced and passed into the pelvis. The fundus uteri was recognised and partially covering this and extending to the left side was a soft, pulpy mass which when brought into the wound resembled the interior of inflamed small intestine. It was red and velvety, of about the size of a small child's head, and was attached to the left broad ligament by a narrow pedicle. By the side of it lay a normal Fallopian tube with open fimbriæ. The pedicle was tied and divided, the peritoneum being sewn over the stump. No other growth was found and the left ovary and tube were healthy. On removal the under surface of the pulpy mass was smooth and looked like the wall of a cyst. It appeared to us as if a cyst had previously existed, had been burst by the fall, and become turned inside out. As large quantities of thick pulpy fluid still poured out two glass drainage-tubes were passed into Douglas's pouch and the abdomen was irrigated. The abdominal wound was closed down to, and around, these. As the patient recovered from the anæsthetic she began to retch and fresh quantities of the same pulpy fluid poured out, soaking the dressings, the patient, and the table. At 10 P.M. reaction had been good but a large amount of fluid had flowed through the tubes, requiring frequent changes of dressings and causing great difficulty in keeping the patient and the bed dry. This continued for 24 hours, after which the amount of fluid lost very rapidly decreased. One tube was removed on Dec. 1st, the next on the 2nd, and a small gauze drain left after the second tube was taken away on the 4th. The mucoid, viscid character of the discharge altered to reddish serum on the 2nd, three days after the operation. A catheter was not required, urine being passed normally on the 1st. Flatus was passed on the 2nd and the bowels acted well after a turpentine enema on the 3rd. The temperature was never above the normal. On the 27th she left the surgical home apparently perfectly well.

In August, 1899, the patient again noticed some increase in the size of her abdomen which became somewhat rapidly larger. In September she felt pain in the right inguinal and iliac regions and this became more intense in October, necessitating her confinement to bed. For a fortnight before observation this pain had been severe, preventing sleep, and for the last week had been accompanied by numbness in the right thigh. I saw her with Mr. Knapton, who had been in attendance, on Oct. 31st, 1899. The abdomen was greatly

enlarged, the circumference at the umbilicus being 53 inches. There was free fluid in the abdomen. A large bilobed mass, dull on percussion, was felt in the hypogastrium extending from the pubes to some two or three inches above the umbilicus on either side. Pressure over this elicited some tenderness, most marked on the left side. There had been since the last operation some vaginal discharge which lately had smelt slightly. There was no pain on micturition or defecation but there had been some difficulty in the performance of the former act. She believed that she had lost weight. She could not lie on either side and was somewhat breathless. The heart and lung sounds were normal. There was no enlargement of the liver. Bimanual examination of the vagina showed that the uterus was normal in size and perfectly mobile, its movements not being communicated to the mass above. The os was split on both sides to the vaginal vaults but the surfaces were smooth and not friable. The examination was, however, followed by slight hæmorrhage from the cervix. The cervix at this time showed no objective signs of malignant disease.

On Nov. 1st, 1899, abdominal cœliotomy was performed nearly in the line of the previous scar. On opening the peritoneum there was a gush of large quantities of similar yellow glutinous fluid as before. A mass similar to that previously removed was found springing from the edge of the right broad ligament. Its pedicle occupied the site of the right Fallopian tube which was not found. By its side, and external to it, was a firm body of the size and shape of an ovary, in which was imbedded a small cyst. Behind the uterus and adherent to it was another semi-gelatinous mass of the size of a small walnut. The peritoneum was injected and so was one coil of small intestine, the peritoneal coat of which presented a finely villous appearance. Both masses were removed along with the ovary; the abdomen was freely irrigated with saline solution until the latter returned clear and the abdominal wound was then entirely closed without drainage. Recovery was uneventful.

In January, 1902, the patient returned for the third time. There was a small ventral hernia at the site of the last operation but this did not give her much trouble. The symptoms of which she chiefly complained were a foul vaginal discharge, mixed with blood and associated with loss of flesh. On examination per vaginam the anterior lip of the os presented a crateriform ulcer with friable walls. On Jan. 26th the sac of the ventral hernia was dissected out. The opening through which bowel had escaped was double, each aperture being of the size of a shilling and the two were separated by a narrow band of fascia. Both sacs had burrowed to some distance into the subcutaneous fat. After being freed they were twisted, after Ball's method, and ligatured, the excess being cut off and the stump reduced into the abdomen. One side of the fascia was then brought over that on the opposite side and united by mattress sutures. As this had taken considerable time the patient was returned to bed and the other operation was postponed until Feb. 2nd.

On this day the temperature had remained normal and there had been no sickness. Vaginal hysterectomy was now done and the uterus was removed. As there was some troublesome hæmorrhage three or four clamps were left on the broad ligaments and the pelvic peritoneum was not united. The vagina was filled with gauze. This operation was followed by some vomiting with abdominal pain. Later there was much flatulence, with borborygmi. The catheter was used until after removal of the clamps which took place 48 hours later. After this urine was passed naturally. All sutures came away by the tenth day. Healing was complete in five weeks and the patient returned home on March 20th apparently perfectly well. In November, 1904, she reported herself as perfectly well, six years after the first operation. Micro-sections were taken of the two papillary growths. These showed true simple papillæ, with connective tissue centres, covered by well-defined columnar epithelium. There was a clear boundary line between the two which was perfectly continuous. The growths were evidently simple papillomata. Sections through the edge of the uterine ulcer showed cell nests.

Opinions differ somewhat with regard to these growths. Thus Giles and Sutton[1] say that there is reason to believe that they arise in the paroöphoron, that they always burrow between the layers of the mesosalpinx. They speak of them as always cysts in the beginning which may burst by overgrowth, the dendritic masses within then protruding and infecting the peritoneum; whilst Williams, in 1892, collected 26 instances of what he designates "surface papillomata." These growths, he says, are generally bilateral and invade the pelvic peritoneum, producing, as a result, hydro-peritoneum in most of the cases; and Senn[2] declares that papillary tumours on the surface of the ovary have been observed by Gusserow, Klebs, Birch Hirschfeld, and Winckel. Similarly the question of their innocency or malignancy appears hardly to have been decisively settled. Semb[3] declares that they are most benign neoplasms, do not cause cachexia, never give metastasis, are not destructive, and do not return. Pozzi[4] says they are ordinarily benign but may sometimes become malignant in the extreme. Alban Doran[5] says that the implantation of papillomatous growth on the peritoneum may prove clinically malignant within a few months or it may completely wither after removal of the tumour. Tauffer[6] insists that some papillomatous growths of the ovaries are essentially innocent, whilst others are distinctly malignant. He[7] makes ingenious comparison between them and the condylomata seen about the vulva in cases of gonorrhœa. In this case they were certainly bilateral but did not both appear at the same time. At the date of the first operation the right ovary, tube, and broad ligament were examined and found to be absolutely free from growth and although they were attacked later there was an interval of 13 months between the dates at which the patient's attention was drawn to the results of their respective invasions. It will have been noted that at the second operation a secondary mass was removed from the posterior uterine wall. When the uterus itself was taken away a little more than two years after no trace of the occurrence of such growth at any time could be found, the peritoneum, so far as could be seen, was healthy, and no fresh accumulation of fluid had taken place.

The patient has been, and remains, perfectly well (February, 1905).

Manchester.

[1] Diseases of Women, p. 269.

[2] Senn on Tumours, p. 148.
[3] Edinburgh Medical Journal, July, 1896.
[4] Medical and Surgical Gynæcology, vol. ii., p. 104.
[5] Encyclopædia Medica, 1901, vol. ix., p. 17.
[6] Edinburgh Medical Journal, July, 1896.
[7] Medical Chronicle, 1901, p. 401.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A CASE OF ACUTE INTUSSUSCEPTION OF THE SIGMOID COLON DUE TO A SUBSEROUS POLYPOID LIPOMA; LAPAROTOMY; EXCISION OF POLYPUS; RECOVERY.

BY JOHN HOWSON RAY, M.B. VICT., F.R.C.S. ENG.

THE patient was a woman, aged 30 years, who was admitted to the Salford Royal Hospital on Dec. 1st, 1904, suffering from acute intussusception of the colon with complete intestinal obstruction and the protrusion of a subserous polypoid lipoma at the anus. She was seen by Dr. J. Stavely Dick two days previously and gave a history of abdominal pain in the left lumbar and iliac regions for the past six months; this pain was noticed chiefly at, and after, defecation. On Nov. 29th, 1904, she had very severe pain after defecation and was somewhat collapsed. Complete intestinal obstruction occurred on this day and vomiting was frequent and excessive. An enema given on Dec. 1st was followed by a violent expulsive effort during which a polypus as large as a medium-sized orange protruded through the anus. This was taken to be the apex of the intussusception, an opinion verified by the subsequent laparotomy.

On admission to the hospital an operation was performed forthwith and an incision about four inches long slightly to the left of the middle line opened the peritoneal cavity and allowed the whole length of the intussusception to be made out. This was about 12 inches long; the neck was over the left sacro-iliac synchondrosis and the pelvic cavity contained much blood-stained fluid. By the aid of an assistant's finger the apex of the intussusception was raised to the level of Douglas's pouch and from this point reduction was

fairly easy. The last part to unfold was at the junction of the middle and outer thirds of the omega loop, and this was brought out of the laparotomy wound and found to contain a tumour that completely blocked the lumen of this part of the colon. The colon having been incised the tumour was exposed and found to be the same mass that had protruded through the anus. The tumour was removed and it was necessary to cut through the wall of the bowel completely to effect removal, thus opening into the mesocolic angle. The wounds in the bowel were sutured with celloidin thread and the abdominal wall was closed in four layers, leaving a small drainage-tube at the lower angle of the wound so as to reach the bottom of the pelvic cavity. The after-treatment was simple and the subsequent progress of the case was uneventful. The tumour proved to be a circumscribed subserous lipoma, apparently growing from the mesocolic angle and producing an inverted diverticulum into the colon. The tumour measured two and three-quarter inches by two and a quarter inches by one inch in the three chief diameters and was ovoid in shape, weighing about two ounces five and a half drachms. The mucous membrane over the tumour was intensely congested and showed marked evidence of circulatory obstruction.

The patient was shown at the meeting of the Manchester Medical Society on Feb. 1st, when attention was drawn to the statistics of intussusception with special reference to cases of intestinal polypi and diverticula.

Manchester.

FRACTURE OF THE ANTERIOR FOSSA OF THE SKULL INVOLVING THE OPTIC AND SIXTH NERVES.

BY LAURENCE C. PANTING, M.D., B.Ch. OXON.,
HONORARY MEDICAL OFFICER TO THE ROYAL CORNWALL INFIRMARY, TRURO.

THE following case seems to be worth recording on account of the somewhat unusual features which it presents, more especially as a similar case has been recently published in THE LANCET.[1]

A boy, aged eight years, was admitted into the Royal Cornwall Infirmary under my care with a history of having been run over by a cart, laden with stones, four hours previously. There had been no bleeding from the ears but there had been bleeding from the nose which had ceased before the arrival of the patient at the hospital. A lacerated wound in the scalp reached from a little below the parietal eminence to the coronal suture with a fracture of the skull extending its whole length, a second fracture almost vertically downwards meeting it about the middle. The angular piece of bone lying posterior to the vertical fracture was depressed. There was no subconjunctival hæmorrhage but there were ecchymosis in the right lower eyelid and surgical emphysema of the cheek due (?) to fracture in the antrum of Highmore. There were also bruising of the chest with surgical emphysema and acute tenderness over the sixth and seventh ribs. Although it could not be definitely made out there was almost certainly a fracture of the rib, as the absence of breath sounds and of voice sounds and the hyper-resonance of the percussion note showed that air was present in the pleural cavity also. The pupils reacted to light and were equal and moderately dilated. The boy was said to have been absolutely unconscious for about a quarter of an hour after the accident; he had regained partial consciousness when admitted into the hospital though he could not answer questions. The respirations were 48 and were shallow but regular; the pulse was 160 and regular and the temperature was 100° F. The urine contained a considerable quantity of sugar, due obviously to the cerebral lesion, but otherwise it was normal.

About two hours after admission an operation was performed for the elevation of the depressed fragment of the skull. The wound was somewhat enlarged and a small hole was trephined in the normal portion of the skull in the usual way and the depressed portion was elevated. The dura mater was found to be pulsating normally and was quite uninjured. The wound was then packed with gauze and the patient returned to bed. On the following day the boy was much better, the respirations had fallen to 34, the pulse to 120, and the temperature to normal; the urine was free from sugar and entirely normal. It was now noticed for the first time that though the position of the eyes at rest was normal, yet the right eye could not be moved outwards beyond the vertical meridian and the direct reflex to light was absent or present only to a very slight extent; the consensual reflex, however, remained normal. Vision with the right eye was very much impaired over the whole field of vision and the patient could only count fingers with difficulty. The fundus showed considerable changes, the papilla being swollen and blurred, the arteries diminished in size, and the veins swollen, while there were numerous bright hæmorrhages in the macular region. The boy made an uninterrupted recovery, the wound being healed in ten days and the lung regaining its activity in a little over a fortnight. The hæmorrhages in the fundus became darker and decreased until only a few of those close to the macula were visible, while the papilla became well defined and white and was clearly in a state of atrophy. This was the condition when the boy left the hospital at the end of three weeks entirely recovered excepting as regards the eye.

In this case it seems clear that the fracture reached forwards into the orbit and that the optic and sixth nerves were directly injured by it—in fact, an x ray photograph taken about a fortnight after the accident demonstrated the fracture reaching to the outer edge of the orbit. Since the continuity of both nerves was affected it seems probable that a like cause affected both and if this be so it can only have been direct injury by a portion of bone and not due to hæmorrhage into the sheath, since of course the sixth nerve is not like the optic provided with a sheath. The whole permanent injury, then, to the eye may probably be assumed to be due to the lesion of the nerves and this is supported by the fact that the consensual reflex was unaffected. The loss of the direct reflex must then be due entirely to the injury to the optic nerve and it is interesting to note that the reflex suffered considerably more than the conduction of light.

Truro.

[1] THE LANCET, Jan. 21st, 1905, p. 158.

A Mirror OF HOSPITAL PRACTICE, BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv., Proœmium.

ROYAL BERKSHIRE HOSPITAL, READING.

A CASE OF PERITONITIS DUE TO THE PNEUMOCOCCUS.

(Under the care of Dr. FRANCIS H. HAWKINS.)

A YOUTH, aged 16 years, was admitted into the Royal Berkshire Hospital under the care of Dr. F. H. Hawkins on April 14th, 1904, complaining of abdominal pain, vomiting, and diarrhœa. On April 9th the lad was quite well; on the 10th at night he was suddenly seized with severe abdominal pain; on the following morning he commenced to vomit and this vomiting continued until the day of admission. The bowels were at first constipated but for two days previously to admission they were moved three and four times during the day.

On admission the patient was noted to be lying on his back with his legs slightly drawn up. He was well developed, with dark hair, flushed face, eyes staring, and mouth firmly closed. The alæ nasi moved rapidly in respiration which was entirely nasal. The tongue was coated but moist. The abdomen was distended and moved but slightly in respiration; when the patient was asked to open his mouth and to breathe, however, the upper part of the abdomen moved freely, but oral breathing caused much abdominal pain which was general. Palpation, even of the slightest, caused pain in all regions. There were no dulness and no localising symptoms of appendicitis and rectal examination gave no indication of it. The lower border of the liver dulness was level with the costal margin. The respirations were 40, the pulse was 112, and the temperature was 101° F. Examination of the heart and the lungs gave no evidence of disease.

For two hours after admission the patient continued to vomit frequently, this being of an olive-green colour. Dr. Hawkins then asked his surgical colleague, Mr. J. A. P. Price, to see the patient with a view of operating. This was

determined upon and when the abdomen was opened purulent fluid and flakes of lymph exuded. The appendix was not diseased.

Necropsy.—(For the notes of this Dr. Hawkins is indebted to Mr. J. R. Thomas who was then house physician.) "Abdomen: large quantity of purulent fluid; whole bowel much congested; veins of mesentery engorged. Bowels covered with lymph. Appendix normal. Spleen slightly enlarged; congested; other abdominal organs passively congested. Lungs congested. Heart normal." Thinking that the case might be one of pneumococcic peritonitis some of the pus was sent to the Clinical Research Association from which the following report was received: "Media were inoculated with this specimen and from subcultures bacilli coli communis and a diplococcus indistinguishable from the pneumococcus were obtained."

Remarks by Dr. HAWKINS.—From the above report I feel justified in recording this case as one of pneumococcic peritonitis. But few cases have been recorded in British literature. Sir Dyce Duckworth and Dr. Frederick Taylor have both recorded cases in the Transactions of the Clinical Society, while Dr. J. H. Bryant in a paper read at the meeting of the British Medical Association in 1901 records three cases. In foreign literature, however, this subject has received much more attention. From a study of cases it appears that pneumococcic peritonitis occurs more in children than in adults, more in girls than in boys, and amongst adults more in men than in women. When met with as acute primary peritonitis, especially in cases sent into hospital with well-marked signs of acute peritonitis, it is difficult to distinguish from acute perforative peritonitis which is so frequently met with. It is, however, well to remember that in pneumococcic peritonitis the onset is very sudden, especially so in children; they are usually apparently quite well one day and the next acute abdominal pain arises, followed by vomiting in nearly all cases and by diarrhœa in most. Herpes may be present and the temperature in some instances assumes the pneumonic character. In the adult, while the onset is equally acute, the pain may be violent colicky without vomiting or diarrhœa. The attack may pass from the acute into a chronic stage with relatively few peritoneal symptoms. This form of peritonitis may be local or general. The prognosis of these cases is, so far as the published cases in English literature are concerned, unfavourable. Thus out of six cases recorded only two recovered—one, a female, aged 27 years, and the other, a girl, eight years of age. Dr. von Bonn, however, expresses the opinion that the prognosis is good.

EGYPTIAN GOVERNMENT HOSPITAL, ALEXANDRIA.

A CASE OF CONTUSION OF THE ABDOMEN; RUPTURE OF THE LARGE INTESTINE; OPERATION; RECOVERY.

(Under the care of Mr. A. WEBB JONES.)

THE patient, a little Egyptian girl, aged 11 years, was admitted to hospital about 4.30 P.M. on Dec. 9th, having been struck in the abdomen by the seat of a large swing near which she was standing. On admission she complained of great pain in the abdomen immediately above the pubes and also to the right. A specimen of urine obtained showed nothing abnormal. The pulse was rapid but of good volume and strength. She was treated with hot fomentations and rest in bed. When first seen by Mr. Webb Jones at 10.30 A.M. on the next day he found the child very restless and vomiting copiously a watery and bilious material. The expression was anxious. On examination the skin showed a transverse linear bruise of the right thigh immediately below the anterior superior iliac spine. The upper half of the abdomen moved with respiration but below the umbilicus there was little or no movement. Over the motionless area the abdominal wall was very tender and rigid, whilst the note was slightly impaired. The pulse was 140 but of fair volume and strength. On re-examination at 2.30 P.M. the condition of the abdomen was unchanged but the facial expression had greatly altered for the worse. A diagnosis of ruptured intestine was made and the patient was at once sent to the operating theatre.

On opening the abdomen (slightly to the right of the median line) a quantity of thin, yellow, slightly feculent-smelling fluid escaped and with it some flakes of lymph. On withdrawing the first loop of intestine which presented a perforation was discovered of about the size of the tip of the little finger. The bowel for a distance of about eight inches in either direction was intensely congested and covered in places with patches of adherent lymph. Beyond these limits, however, the gut presented a normal appearance. Makins's clamps were applied above and below the perforation and the rent was closed by a simple catgut suture invaginated by a continuous Lembert's suture of silk. In the course of the manipulations a small quantity of semi-solid fæcal material was extruded from the rent. The portion of gut (sigmoid flexure) affected was then gently sponged with hot sterile water and carefully examined. At the same time, with the edges of the wound held widely apart so as to give free exit to the fluid, the nozzle of an irrigator was introduced into the pouch of Douglas. In this way, the mesentery of the sigmoid flexure forming a sort of natural barrier, the soiled section of the peritoneum was thoroughly cleansed without attacking the general peritoneal cavity as a whole. No attempt was made to remove any residual water and the wound was closed in layers, leaving a small gauze drain and rubber tube at the lower extremity. Feeding was commenced in 24 hours with spoonfuls of lime water and milk in gradually increasing quantities. The tube was removed on the second day and replaced by a very fine gauze wick. The bowels were opened naturally on the fourth day and from that time recovery was uninterrupted, the upper portion of the wound healing by first intention.

Remarks by Mr. WEBB JONES.—The diagnosis presented but little difficulty. The general symptoms—pulse, vomiting, and facial aspect—or more especially their steady increase in severity in spite of rest and warmth, made it certain that some serious internal injury was present. At the same time the local condition of pain, tenderness, and rigidity in the lower half of the abdomen, with an absence of urinary changes, pointed to a rupture of the intestine as the most probable lesion. With regard to treatment it would seem that where the intensity of the inflammation is limited, a limited irrigation (as in the present instance) is indicated rather than an irrigation of the entire abdominal cavity. Brewer[1] has published a case in which after successfully closing one rent the patient died on the twelfth day from a second perforation. The latter rupture had apparently resulted from the giving way of a second spot the vitality of which had been irrevocably damaged by the original accident. His case emphasises the importance of carefully scrutinising the coil of bowel involved and, if necessary, of invaginating any suspicious spots with a Lembert suture. A point of interest in the present case is the time (unavoidable) that elapsed before operative measures were employed. This must have been at least 22 hours.

Medical Societies.

ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

Subsequent Course and Later History of Cases operated on for Appendicitis.

A MEETING of this society was held on Feb. 28th, Sir RICHARD DOUGLAS POWELL, Bart., the President, being in the chair.

Sir FREDERICK TREVES opened a discussion on the Subsequent Course and Later History of Cases operated on for Appendicitis. He divided the matter for discussion under two heads—the first including the various degrees of imperfect relief or of imperfect recovery after operation and the second the complications which arose in connexion with the operation but which were not directly due to the primary disease. For the materials on which his paper was based he was indebted partly to his own case books and partly to a large number of statistics which had been obtained for him by Mr. Hugh Lett. Mr. Lett had written something like 800 letters to patients who had been operated on at the London Hospital for appendicitis with a view to obtaining information as to their subsequent history and had constructed statistical tables of 1000 cases of operation for

[1] Annals of Surgery, 1903.

appendicitis at the London Hospital between July 1st, 1900, and August 15th, 1904. Imperfect results following removal of the appendix during the quiescent period were first considered and belonging to this class he had found 45 instances in his own books and 11 in the records of the hospital. The recurrence of attacks similar to those which had occurred before operation was due in some instances to the fact that there had been failure to remove the diseased appendix and in others to the presence of an appendix stump, a condition which emphasised the necessity of removing the appendix flush with the cæcum. In a much larger class the persistent symptoms had been caused by the presence of chronic inflammation of the right ovary and an example of such a condition in a woman, 30 years of age, was cited. Sir Frederick Treves thought that in order to avoid this possibility the right ovary should be systematically examined in all cases and that for the purpose a free opening by cutting the abdominal muscles was preferable to the more conservative method of splitting their fibres. In a certain number of cases a pre-existent colitis recurred after operation for appendicitis and gave rise to the statement of the patient that no relief had been obtained. Such cases usually recovered after several months of treatment. There were other cases in which constant pain in the right iliac fossa followed the operation and some of these were probably neuralgic in character and others were distinctly neurotic. The term neurosis was often a cloak for ignorance but it appeared to be appropriate to a patient who had resisted all ordinary methods of treatment and had eventually found relief in some form of "nature cure." Gall-stones, colic, moveable kidney, and renal calculi had been responsible for the return of symptoms simulating previous attacks of appendicitis in other instances. Finally there occurred tender painful lumps in the right iliac fossa, which in one case had been inflammatory, in three cases had been due to impacted fæces, and in another were the result of the presence of tuberculous glands. In 100 imperfect results following the evacuation of perityphlitic abscesses 40 were due to persisting sinuses, 24 to recurring abscesses, 16 to recurrent attacks of appendicitis, 12 to fæcal fistulæ, and eight to inflammatory deposits in the right iliac fossa. The majority of persistent sinuses were caused by the presence of a diseased appendix or a concretion. The recurrent abscesses, in the absence of a similar exciting cause, could be looked upon as independent of the appendicitis and common to all forms of local suppuration. The inflammatory masses were often diagnosed as pelvic sarcomata owing to their situation and extreme density but tended to resolve without special treatment. With regard to the presence of fæcal fistulæ four points should be remembered—viz.: (1) as long as the fistula persisted a second attack of appendicitis was extremely unlikely; (2) a fistula which was not due to actual cutting or tearing the bowel tended to heal spontaneously; (3) a fæcal fistula occurring some days after operation was more favourable than one which appeared at the time of operation; and (4) a diseased appendix or concretion was responsible for the persistent fistula in certain cases. An important question in the treatment of cases of perityphlitic abscess was whether, in the event of the appendix having not been removed at the time the abscess was evacuated, a second operation for appendicectomy should be performed in the subsequent quiescent period. With a most liberal estimate only 17 per cent. of cases showed any recurrence of symptoms after the abscess had been drained without removal of the appendix, and in 83 per cent. therefore such a second operation was unnecessary. Taking this fact and the well-known difficulty of the operation into consideration, the conclusion to be drawn was that a second operation should not be performed unless there was evidence of recurrent mischief. The complications associated with the operation for appendicitis were not fully considered and reference only was made to the fact that in 11 out of 12 cases of femoral thrombosis it was the left vein which had been involved, a circumstance which was not easily explained.

Sir WILLIAM BROADBENT considered that the discussion was one in which the physician could hardly take a part as it was unusual for him to be acquainted with the after-history of patients who had been handed over to surgical treatment. He was thankful that when imperfect results followed operative measures the patient almost invariably returned to the surgeon.

Mr. CHARTERS J. SYMONDS stated that in a series of 72 private cases he had met with one case of left femoral thrombosis, one fatal case of cardiac embolism, one case of non-fatal pulmonary infarction, and one pelvic abscess. 71 of these cases were perfectly relieved, although one was suffering from pain of renal origin. Out of 50 hospital cases there were no instances of venous thrombosis but two had recurrence of pain in the right iliac region. In one of these the pain was relieved by suturing the kidney and in the other the kidney was probably also at fault. Three cases had come under observation for recurrence of symptoms after operation by other surgeons. The right kidney was the seat of disease in two patients and in the third the symptoms were probably neurotic. Out of 37 cases in which the operation had been performed during the acute stage the appendix had not been removed in 14, two of which had had recurrence of suppuration. Mr. Symonds agreed with Sir Frederick Treves that thrombosis of the femoral vein was most common on the left side and he considered that the infrequency of its occurrence in his own series might be partly explained by the fact that he encouraged movement of the legs and the early attainment of the sitting posture after operation. In the absence of evidence of septic absorption it was sufficient to lay open a perityphlitic abscess and to drain it but when symptoms of septicæmia were present it was desirable to remove the diseased appendix.

Sir LAUDER BRUNTON thought that the majority of cases operated on for appendicitis remained perfectly well but a few returned to the physician with symptoms of chronic colitis which had existed previously. The pain in some of these cases was possibly due to adhesions involving nerves as it was not infrequently referred not only to the iliac region but also to the thigh. He had seen the symptoms of hepatic colic and those of appendicitis associated and in another case he had suspected the coexistence of pancreatic calculi and perityphlitis.

Mr. A. PEARCE GOULD based his observations on 300 cases of operation for appendicitis in private and hospital practice. He agreed that it was often difficult and sometimes impossible to remove the appendix but was fully aware of the disastrous results which sometimes supervened when the removal was imperfect. In only 10 per cent. of cases in which an abscess had been drained without removal of the appendix had there been any recurrence of symptoms; the justification for a secondary appendicectomy, therefore, was not evident without some special indication. Many complications had been observed, including femoral and internal saphenous thrombosis, cerebral softening, acute intestinal obstruction, ovarian suppuration, gangrene of the cæcum, and two cases of parotid bubo. Out of 214 cases of removal of the appendix without suppuration there had been only three deaths, one due to cardiac failure, one to septicæmia, and one to septic peritonitis. Out of 92 cases of perityphlitic abscess and general peritonitis 25 had died. There was ground to hope that with improved diagnosis and a clear recognition of the fact that operation should not be postponed until suppuration had taken place the mortality in cases of appendicitis would be very considerably reduced.

The meeting, which was very largely attended, was adjourned until Tuesday, March 7th, at 5 P.M.

MEDICAL SOCIETY OF LONDON.

Analysis of 300 Consecutive Gynæcological Laparotomies.—Some Remarks on Cæsarean Section.

A MEETING of this society was held on Feb. 27th, Mr. JOHN LANGTON, the President, being in the chair.

Dr. A. H. N. LEWERS read a paper based on an analysis of 300 Consecutive Gynæcological Laparotomies. Dr. Lewers gave in statistical form a very brief description of about 60 cases belonging to this series and these served to illustrate the great variety of conditions which he had found and the many difficulties that he had met with in dealing with different pelvic diseases. In summarising his results he divided his cases into nine different groups in the following manner: 1. Ovariotomy. 100 cases with no mortality. In 29 cases the ovaries on both sides had been removed and in 18 cases he had met with twisted pedicles. 2. Abdominal hysterectomy for fibroids. 73 cases with four deaths. Two cases had died from intestinal obstruction, one from shock, and one from peritonitis. 3. Removal of inflamed uterine appendages. 47 cases, four of which died. In each of the fatal cases the condition found was that of pyosalpinx. 4. Abdominal section for ectopic gestation,

33 cases and one death. 5. Abdominal hysterectomy for conditions other than fibroids. 17 cases with six fatalities. Among these were instances of complication with such serious conditions as chronic Bright's disease, chronic bronchitis, pulmonary embolism, &c. 6. Exploratory laparotomy. 14 cases, of which five died. In this series there were seven instances of malignant disease, two of which proved fatal, one case of intestinal obstruction, and one case of appendicitis. 7. Cæsarean section. Eight cases with one death, the latter supervening in a patient who had been in labour for four days before the operation was undertaken. In six of this series section was performed on account of contracted pelvis and in the other two on account of tumours obstructing the pelvic outlet. 8. Myomectomy. Three cases with no deaths. 9. Hysteropexy. Five successful cases. In the whole series there were 21 deaths, giving a mortality of 7 per cent.

Dr. W. J. GOW read a paper dealing with Cæsarean Section. He reminded his audience that until recent years this operation had been one of almost academic interest and nearly invariably fatal. Although it was now performed with much more success it did not yet occupy the important position which it should do and which he anticipated it certainly would do in the future. His experience was based on 26 cases in which he had had no maternal death and in which all the children had been born alive, although three had died in the early days of infancy. In 25 of the cases the operation had been undertaken on account of contracted pelvis and in one on account of a fibroid obstructing labour. The most advantageous time for Cæsarean section was at full term, either just before or during the first stage of labour, and especially before the membranes had ruptured. His first case was that of a rachitic dwarf and he was called upon to operate after labour had been going on for 12 hours. The uterus was in a state of tonic contraction and had almost to be split in two, a leg having escaped into the vagina and presented at the vulva. There was very little hæmorrhage and silk ligatures were used in suturing the uterine wall. The indications for performing Cæsarean section were: (1) pelvic contraction or tumour obstructing labour; and (2) a child at or near full term and in a vigorous condition. The latter was necessary because, for some unknown reason, infants delivered by this method were subjected to very considerable shock. In the majority of instances the operation was simple and required very few instruments, only one nurse and one assistant. The abdominal incision need never be more than four inches in length and it was well to remember the extreme thinness of the abdominal wall in many women at the end of pregnancy. The presence of the placenta on the anterior wall of the uterus did not, in Dr. Gow's experience, add to the difficulties. It should be rapidly cleared away from its attachments and not incised. The child should be extracted, if possible, by the feet and, after the cord was tied, placed in a warm bath until he was disposed to breathe. Artificial means of inciting respiration were to be avoided. The uterus should be closed and returned into the abdomen as rapidly as possible in order to secure good contraction. In ordinary circumstances the escape of liquor amnii into the peritoneal cavity was attended with no bad consequences, but in one case in which the fluid had become contaminated by an ante-partum vaginal discharge it had infected the peritoneum and given rise to several localised abscesses. These had been opened and drained with success. Dr. Gow had not found that in performing a second section, which he had done in three cases, there had been any serious inconvenience due to the presence of adhesions. He did not intend to perform symphysiotomy in any circumstances and he considered that the removal of the body of the uterus after Cæsarean section was not only superfluous but a step in the wrong direction.

CLINICAL SOCIETY OF LONDON.

Exhibition of Cases.

A MEETING of this society was held on Feb. 24th, Dr. FREDERICK TAYLOR, the President, being in the chair.

Dr. J. H. BRYANT showed a case of Anæmia Splenica with marked pigmentation and clubbing of the fingers. A man, aged 48 years, temperate, who had never been abroad, had in July, 1876, a severe fall and was struck on the left side of his abdomen. In 1900 he suffered acute abdominal pain and was told that he had an enlarged spleen. In January, 1904, a severe attack of abdominal pain was accompanied by hæmatemesis. He had a yellowish-brown complexion, his fingers were markedly clubbed, and the spleen was enlarged and extended two inches below the umbilicus; there were numerous patches of dark brown pigmentation in the skin over the dorsum of the feet and the front of the legs; the urine was normal; the red blood corpuscles numbered 4,350,000 per cubic millimetre, there was 70 per cent. of hæmoglobin, the colour index was 0·8, and the white blood corpuscles numbered 4375 per cubic millimetre.—The PRESIDENT remarked on the rarity and obscurity of the case and mentioned another which resembled it in some respects but which had, in addition, a much enlarged liver.—Mr. W. J. HARRIS asked whether Dr. Bryant considered that cases of splenic anæmia without pigmentation and clubbed fingers should be placed in a different category to the one exhibited.—Dr. A. G. PHEAR asked whether there had been at any time more evidence of anæmia than at the present and expressed doubts as to the propriety of using the name splenic anæmia in the absence of such evidence.—Mr. W. G. SPENCER referred to the presence of a traumatic history in the case and suggested it might be a case of splenomegaly similar to those occurring abroad in which excision of the spleen had relieved the symptoms.—Dr. F. PARKES WEBER thought the pigmentation on the legs was hæmorrhagic in origin and that this suggested some primary disease of small blood-vessels. Perhaps some partial obstruction to the splenic vein might account for the enlargement of the spleen.—Dr. BRYANT, in replying, admitted the difficulty in naming the condition but thought that the association of splenomegaly with pigmentation and clubbed fingers justified the use of the term anæmia splenica.

Mr. EDRED M. CORNER showed a case of Dislocation of the Atlas from the Axis with Fracture of the Anterior Arch of the Atlas. A man, aged 21 years, fell off a horse upon his forehead. He "saw stars" but was able to mount the horse and to ride home. A fortnight later the patient's neck was found to be rigid and he carried his head a little flexed and turned to the right. He had a difficulty in opening his mouth, also in articulation and in mastication, but not in swallowing. The left transverse process could be felt between the mastoid process and the angle of the jaw; as to the process on the right side the examining finger found in its place a depression, whilst at the back of the pharynx on the right side there was a prominence. A skiagraph showed the dislocation of the atlas from the axis on the right side and also a fracture of the anterior arch of the atlas. The condition of the odontoid process was doubtful.

Dr. PURVES STEWART showed a case of Narcolepsy and Hysterical Blindness. A man, aged 22 years, previously healthy, had an attack of influenza six weeks ago. A fortnight ago he complained of pain in the left side of the chest but there were no abnormal physical signs and he had insomnia for four or five nights. He was then given 15 grains of sulphonal and slept for 19 hours continuously. Since then he had had attacks of sudden sleep occurring at meals, during games, &c., lasting several hours at a time. Four days before admission he developed convulsive phenomena (opisthotonos, &c.) just before waking. Three days before admission he awoke to find himself practically blind. He could now only distinguish light from darkness and the gait was that of a blind man. He kept the eyes directed habitually straight forward. The optic discs, pupils, and cranial nerves were normal. There was no headache or vomiting. The urine was normal.—Dr. ALEXANDER MORISON thought that some such term as hypnolepsy would be more appropriate than narcolepsy and cited two cases of the latter condition in which the sudden attacks of falling asleep had been associated with marked cyanosis and other grave symptoms.—Dr. STEWART, in reply, stated that Charcot had used the name narcolepsy for cases similar to the one which he had shown.

Mr. A. H. TUBBY showed a case three years after Muscle-grafting for Paralysis of the Left Upper Extremity. In June, 1901, the boy, then aged ten years, had infantile spastic paralysis of the left upper extremity. The forearm and the hand were in the position of excessive pronation, with flexion at the elbow and the wrist. The fingers were strongly flexed. The pronator radii teres was detached, then passed behind the radius, and re-attached so as to act as a supinator. The palmaris longus and other flexor tendons at the wrist were divided. The patient had regained extension at the

elbow, supination of the forearm, and flexion and extension of the fingers, especially when the humerus was fixed.—Dr. E. FARQUHAR BUZZARD maintained that there was no evidence that the grafting of the pronator radii teres had been of any service; the forearm could only be brought to a position midway between pronation and supination and that movement was performed by the biceps, which could be felt to contract. He thought that the tenotomy would account for any other improvement which might have resulted from the operation.—Mr. HARRIS believed that the massage with which the patient had been treated since the operation might be responsible for any amelioration in the condition of the arm.—Mr. TUBBY, in reply, said that it was impossible to judge of the improvement without having seen the patient three years ago.

Mr. WILLIAM TURNER showed a case of Primary Sore on the Eyelid of a child, aged three years. The patient had been quite well until early in January, when, without obvious cause, a pimple formed on the margin of the right lower eyelid towards the outer side and had since steadily enlarged. An enlargement of the glands below the jaw on the right side was first noticed on Feb. 11th and there had since been a steady increase in size. The child had seemed ill since Feb. 18th. She had been sleeping with her mother. The mother, aged 29 years, had had several living children, two born alive who died after a few weeks, and one miscarriage. She was under treatment in August, 1904, for secondary lesions, mucous patches in the throat with enlarged glands, and an eruption on the hand.—Mr. CAMPBELL WILLIAMS expressed his opinion that acquired syphilis in young children was generally productive of severe constitutional symptoms and that it was important to get the patient under the influence of mercury. He advised the use of mercurial ointment on a binder.

Dr. J. G. SLADE exhibited a case of Lymphatic Leukæmia with microscopic specimens of the blood showing an enormously increased number of white blood corpuscles. The patient, a house painter, aged 49 years, had been in hospital under the care of Dr. W. H. Allchin. He had always been a teetotaler, was without venereal history, and was a moderate smoker. He began to complain in the autumn of 1902 of weakness and pains all over, and lumps in the neck were first noticed by his wife. In May, 1903, a medical man found lumps in the neck, axillæ, and groins larger then than they were at the present time. He improved under treatment but before admission lost flesh, was short-winded, and his face became yellowish. He had had no bleeding or diarrhœa or œdema of the ankles. He was found to have enlarged glands, supraclavicular, axillary, and inguinal; they were soft, discrete, moveable, and not tender. The liver extended two inches below the costal margin, the spleen was enlarged, extending two inches below the umbilicus, and the notch could be felt. His urine had a trace of albumin. Examination of the blood on Feb. 21st gave the following results: red corpuscles, 2,430,000; hæmoglobin, 24 per cent.; and white corpuscles, 1,300,000. The proportions of the leucocytes were: small, 96 per cent.; large, 3 per cent., and polymorphic, 1 per cent.; of the polymorphic five corpuscles were finely granular to one coarsely granular. Blood platelets were scanty.—Dr. PHEAR pointed out that although the polymorphic cells formed only 1 per cent. of the total white corpuscles there were 13,000 to the cubic millimetre, which was two or three times as many as the normal. He asked whether the large white cells belonged to the class of large lymphocytes or whether they were large hyaline cells of the ordinary type.—Dr. WEBER drew attention to the remarkably low hæmoglobin value considering the number of red corpuscles.—The PRESIDENT thought it would be interesting to learn when the changes in the blood developed and mentioned a case in which enlargement of lymphatic glands had preceded the leukæmic by nine months.

Mr. W. H. BATTLE showed a case of Disease of both Knee-joints. A man, aged 37 years, in 1902 was attacked by pain in the calves, the ankles, and the feet and in spite of treatment with salicylates and iodides developed effusion in the wrists, the elbows, and the knee-joints. At the end of 1903 the effusion in the knees had become more marked and the right knee was aspirated. It was now less swollen but the effusion in the left knee had increased.—Mr. CAMPBELL WILLIAMS asked what amount of iodide had been given and mentioned a case of a child in which he had mistaken a syphilitic for a tuberculous arthritis.

Mr. DOUGLAS DREW showed a girl, aged seven years, with complete restoration of function after Arthrectomy of the Knee-joint. Arthrectomy was performed in September, 1904, for tuberculous synovitis which had started after a fall two years before. The whole of the synovial membrane was studded with small tubercles. The sutures were removed a week after the operation and five days later a daily movement of the joint was commenced. A month afterwards some adhesions which limited movement were broken down under an anæsthetic. All swelling subsided and the child had been running about for some months with full movement.—Mr. T. H. KELLOCK thought that the result was so good that it threw some doubt on the original diagnosis. He considered that the tibiæ in both legs were suspicious of congenital syphilis.

Mr. DOUGLAS DREW also showed a case of Excision of the Navicular for Tuberculous Disease.

Mr. J. HUTCHINSON, jun., showed a case of Ossifying Sarcoma of the Left Fibula of two years' duration. The patient, a man, aged 40 years, had observed the tumour during the last two years. It overlapped the tibia and extended from a hand's breadth below the knee to the lower third of the leg. The radiograph proved that it grew from the fibula alone and that there was a large amount of bone towards its centre. It interfered little with the muscles of the limb but had caused a certain amount of pain. Pulsation in both anterior and posterior tibial arteries did not seem to be altered at the ankle. The patient had sustained no injury to the part and no other cause could be assigned for the development of the tumour.—Mr. G. EASTES pointed out the help which had been obtained from the radiograph in showing the origin of the growth from the fibula.—Mr. KELLOCK thought that the proper treatment was amputation at, or above, the knee.—Mr. DOUGLAS DREW believed that even amputation held out very little chance of ultimate recovery.—Mr. W. G. SPENCER agreed in the unfavourable prognosis of these cases.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF PATHOLOGY.

Exhibition of Specimens.

A MEETING of this section was held on Feb. 17th, Dr. H. C. EARL, the President, being in the chair.

Dr. PEACOCKE showed a Liver which was a well-marked example of atrophic or multilobular non-alcoholic cirrhosis. It was obtained from a married woman, aged 30 years, who had been a teetotaler all her life. There was no syphilitic history and no apparent cause for the condition could be discovered. The duration of her illness was five months, ascites being first discovered three months before death. She had never had any gastric symptoms.—The PRESIDENT said that the connexion between alcoholic excess and cirrhosis of the liver had been assumed and partly proved but he thought that too much importance was placed on the alcoholic excess. In quite half of the cases which he had seen there was certainly none. It was hard to say whether there was syphilis or not but at any rate it was impossible to get a history of it. He had seen cases of typical cirrhosis in very young people, for example, in a child aged seven years and in a child aged 11 years. It was obvious that there was some other factor besides alcoholic excess; there were persons who drank all the alcohol they could get without having cirrhosis.—Professor O'SULLIVAN said that his own experience coincided with that of the President. Post-mortem examinations were made on numbers of drunkards in Dublin and fatty infiltration of the liver was usually found while cirrhosis of the liver was the exception; he was inclined to think that it might be due to the particular kind of liquor consumed. In experimental cirrhosis the disposition of the animal appeared to exercise a certain amount of influence on the result—that is, some animals of the same species would develop cirrhosis and others would not, as if there was a tendency in some individuals to the formation of increased connective tissue.—Colonel MCNEECE, R.A.M.C., said that during the last 15 years he had made many post-mortem examinations but had never seen a case of cirrhosis of the liver. The cases which did occur at Netley were in men who had served 15 years in India. Formerly each man was supplied with a dram of rum in the morning (and many men besides bought more liquor) but that had been done away with for the last 12

years or so and now nothing was seen of the hobnail liver in the army; he thought that it may have been due to a sort of crude alcohol manufactured in India from beetroot. Investigations of cirrhosis occurring in strictly temperate persons had been made in Canada.

Dr. PEACOCKE exhibited specimens from a man, aged 48 years, who had died from infective endocarditis, the duration of his illness being about six months. Infarcts were present in the lungs, the spleen, and the kidneys. In the brain there were three distinct hæmorrhagic infarcts, one in the inferior frontal convolution, another in the region of the temporo-sphenoidal convolutions, and another in the occipital lobe, all on the right side. For two months before his death the patient had suffered from aphasia. Vegetations were present on the tricuspid, mitral, and aortic valves and on the endocardial surface of the left ventricle and auricle. No aortic murmur was audible during life. No micro-organisms were found in the blood.

Dr. R. TRAVERS SMITH exhibited a specimen showing Perforation and Aneurysm of an Aortic Valve.

SOCIETY FOR THE STUDY OF DISEASE IN CHILDREN.—A meeting of this society was held on Feb. 17th, Dr. Edmund Hobhouse being in the chair.—Mr. N. Bishop Harman showed a case of Unilateral Paralysis of the Third and Fourth Cranial Nerves of Congenital Origin.—Dr. Porter Parkinson agreed that it might be due to an anterior poliomyelitis.—Mr. Sydney Stephenson pointed out that in some cases there was a marked history of heredity.—Dr. Hobhouse showed a child, aged five years, with Hemiplegic Spasticity and Incoördination on the Right Side. Weakness of the right arm was followed a year later by incoördinate movements of the leg. Six months before any nervous symptoms appeared the child had convulsions. There was neither optic neuritis nor mental impairment. The condition had remained stationary for the last eight months. There was considerable spasticity on the right side and it was almost impossible to obtain a knee-jerk.—Dr. F. Parkes Weber showed a girl, aged 12 years, with Chronic Joint Disease, Splenomegaly, and Enlarged Axillary Glands. There had been a definite general reaction to tuberculin and he regarded this as a valuable indication for treatment.—Dr. F. J. Poynton showed a boy, aged eight years, with Chronic Arthritis which had begun without apparent cause three years before. The affection was most marked in the hands and the feet. The course was characterised by relapses and fever with a good deal of local pain. The axillary glands were enlarged but no splenic enlargement had been found. Radiography showed no changes in the bones. The appearance of the fingers was that of rheumatoid arthritis.—Dr. Edmund Cautley showed a boy, aged nine years, with early Osteomyelitis or Epiphysitis of the Upper End of the Femur. He was admitted to hospital on Dec. 16th, 1904, as a case of rheumatic fever. The symptoms were pyrexia, leucocytosis, anæmia, unduly frequent pulse, and pain and swelling in the upper part of the left thigh. An exploratory incision on Dec. 28th was negative in result. On Jan. 27th a skiagram showed definite changes in the neck and the upper part of the shaft and in both trochanters. On Feb. 8th pus appeared under the scar of the exploratory incision and on reopening the wound a probe passed down to bare bone. Dr. Cautley regarded the case as one of mild osteomyelitis or starting as an epiphysitis of the great trochanter.—Mr. Douglas Drew advised further exploration.—Mr. Arthur Edmunds showed a boy, aged seven years, with Syphilitic Arthritis of the Right Knee, forming a painless swelling, of two years' duration, which had markedly decreased under antisyphilitic treatment.—Dr. G. A. Sutherland showed a boy, aged 12 years, with Syphilitic Arthritis of Both Knees of one month's duration and quite painless. The joints contained free fluid. There was no other evidence of disease. He stated that in his experience drugs had proved of little use and that the affection ran a prolonged course, ending in spontaneous recovery.—Mr. Douglas Drew showed a case of Excision of Both Hip-joints for Tuberculous Disease and one of Acquired Club-foot with marked hereditary tendency.—Dr. G. E. C. Pritchard showed a child, aged two years, with Spastic Diplegia and Optic Atrophy. The head was microcephalic. Labour was difficult and prolonged. Spastic rigidity was almost universal and almost constant choreiform movements were present in the hands and the arms. Frequent mild fits occurred. The first fit was said to have been on the third day of life. There were no signs of intelligence. He regarded the condition as one of microcephalic congenital idiocy due to arrested or perverted development of the nerve elements.—Dr. Hobhouse showed a specimen of Congenital Absence of the Gall Bladder and Bile Ducts from a female, aged eight months, jaundiced since birth. The urine contained no bile salts or pigment. The fæces were white. The liver weighed eight ounces and the child nine pounds at death. There was marked interlobular cirrhosis.—Dr. Hobhouse also read a paper on a case of Interstitial Nephritis, with Extensive Renal Retinitis in a girl, aged six years. The eye symptoms appeared two months before death and were very intense. The urine was rather copious, contained a few hyaline casts, and blood for a time. There was no evidence of congenital syphilis but the child had had scarlet fever at the age of three years. The kidneys were exhibited.

GLASGOW MEDICO-CHIRURGICAL SOCIETY.—At a meeting of this society held on Feb. 17th Dr. David Newman delivered a presidential address on the subject "Cystoscopy, with Special Reference to the Use of the Cystoscope in the Diagnosis of Renal Disease" and demonstrated a large number of cases by means of an opaque projector in order to illustrate that in surgical diseases of the kidney the symptoms simply pointed to the direction in which information might be obtained, nothing more. For example, pain and hæmaturia might originate as a consequence of the disease of any portion of the urinary tract and while in many instances the character of the bleeding and the situation of the pain correctly indicated the nature and the site of the lesion, in others they seriously misled unless resort was had to physical proofs to guide and to correct the conclusions deduced from subjective symptoms. Cystoscopy—including the appearances of the bladder, of the orifices of the ureters, and the nature of the fluid which escaped from them—cleared up the differential diagnosis of bladder and renal disease, and at the same time enabled the surgeon to answer the questions: (1) Are both kidneys functionally active? (2) Are one or both involved in disease? (3) If one alone, which is it? The facts revealed by the cystoscope combined with the information obtained from bacteriological research, chemical examinations, radioscopy, and segregation of the urine, added to the ordinary clinical inquiry, enabled the surgeon to advise operation or to refuse it, knowing that he had employed all the methods of diagnosis at hand. Dr. Newman pointed out the advantages of Schlagintweit's catheter-cystoscope for diagnostic purposes and of the Casper-Hirschmann instrument (by which two observers could view the bladder at one time) for demonstrating lesions in the bladder. By means of the opaque projector and a translucent screen he demonstrated a systematic examination of the normal bladder and afterwards showed three dozen most realistic views showing: 1. Lesions of the bladder such as active hyperæmia, chronic inflammatory changes, sacculation, tuberculous disease in various stages, and simple and malignant tumours. 2. Changes in the bladder and orifices of the ureters in descending ureteritis, ascending ureteritis, periureteritis, and chronic nephritis in various forms. Also the various changes in tuberculous nephritis, renal calculus, and tumour of the kidney. 3. Jets of urine, blood, and pus being ejected from the ureters. Blood and pus clots were also shown slowly passing down the ureter and dropping into the bladder. The following conclusions were drawn: 1. When one ureteral orifice is altered while the other is normal the renal lesion is on the side of the morbid ureter. 2. When the urinary jets are more frequent on one side than on the other: (*a*) greater functional activity is indicated by the jets being uniform in size and regular in rhythm; (*b*) undue irritation of the kidney is to be inferred when the jets, while more frequent than normal, are irregular in rhythm, unequal, and small in size; and (*c*) stricture, stone, or chronic ureteritis should be suspected when the shoots are distorted in form or irregular in amount. 3. When the urine does not escape in distinct jets: (*a*) dilatation of the ureter without paralysis of the sphincter is indicated when the urine dribbles into the bladder at intervals; and (*b*) destruction of the sphincter action is shown by the urine flowing into the bladder almost continually. 4. The characters of the morbid fluids escaping from the ureter or of clots, &c., occupying the opening denote the morbid changes taking place in the corresponding kidney. The deformity of the orifice also indicates the

character of the renal disease: (*a*) pin-head contraction (chronic inflammation or impacted calculus); (*b*) elongated and distorted (distension of renal pelvis or infective nephritis); (*c*) swollen or pouting (prolonged but not acute inflammation of renal parenchyma); (*d*) dilated (advanced tuberculous or calculous pyonephrosis); and (*e*) U-shaped (significance doubtful, usually denotes prolonged irritation of renal pelvis).

LEEDS AND WEST RIDING MEDICO-CHIRURGICAL SOCIETY.—A pathological meeting of this society was held on Feb. 17th, Dr. Adolph Bronner, the President, being in the chair.—Mr. R. Lawford Knaggs and Dr. O. C. Gruner described two cases in which there had been two Malignant Tumours of the Intestines. In the second case, upon which there had been a post-mortem examination, there was found a columnar carcinoma producing stenosis at the commencement of the rectum. Below this growth the mucous membrane was covered with polypoid projections (adenomata) until a second and larger growth was reached close to, and involving, the anus. This growth was also a columnar carcinoma and the microscopic appearances confirmed the general inference that the lower growth was of later origin than the higher one. In the stomach a large polypoid mass occupied the pyloric region. This was an adenoma and showed no trace of malignancy. Both in the stomach close to the polypoid mass and in the rectum between the two growths the mucous membrane showed inflammatory infiltration. There were numerous secondary growths in the liver. It was thought that the two rectal growths were independent and that neither could be regarded as of metastatic origin: that the polypoid condition of the rectum had developed malignant features at the points of greatest irritation. The condition of the stomach was regarded as "pre-cancerous."—Mr. J. F. Dobson showed a specimen of Mesocolic Hernia. The hernial sac lay to the left of the duodeno-jejunal flexure, extending between the layers of the transverse mesocolon towards the splenic flexure. It contained portions of two coils of the upper jejunum. In the margin of the peritoneal fold forming the anterior wall of the sac the ascending branch of the left colic artery was seen, while the inferior mesenteric vein ran upward behind the parietal peritoneum at some little distance from the orifice of the sac. Reference was made to the usual forms of hernia arising in this neighbourhood and the difference between the specimen shown and the ordinary forms of left duodenal hernia was emphasised. The specimen was considered to be similar to the one described by Sir Astley Cooper as a mesocolic hernia.—Mr. B. G. A. Moynihan said that this was an example of a hitherto undescribed form of hernia unless the one described by Sir Astley Cooper was an instance of the same condition, which was not certain.—Dr. Gruner showed a specimen of Diffuse Hyperplasia of the Stomach which had been regarded as malignant but which showed histologically no evidence of malignancy. It was suggested that it might be syphilitic in origin.—Mr. Moynihan shown a series of 23 specimens from recent cases of total prostatectomy.—Dr. W. H. Maxwell Telling showed a case of Pulmonary Tuberculosis, with extensive basal cavitation, in an infant aged 16 months.—Dr. T. Wardrop Griffith showed an unusual case of Congenital Malformation of the Heart.—Various other specimens were shown by Professor A. S. F. Grünbaum, Dr. Alfred Mantle, Mr. Ward, Dr. E. Octavius Croft, Dr. Thomas Churton, Dr. Allan, Mr. G. Constable Hayes, Mr. Harry Littlewood, Dr. J. Kay Jamieson, and Mr. A. L. Whitehead.

ULSTER MEDICAL SOCIETY.—A meeting of this society was held on Feb. 16th in the Medical Institute, Belfast. The following clinical cases were exhibited:—Sir William Whitla: (1) A case of Lead Palsy; and (2) a case of Paralysis Agitans.—Mr. G. L. St. George: (1) A case of Pernicious Anæmia; and (2) a case of Syphilitic Ataxia.—Dr. William Calwell: (1) A case of Angioneurotic Œdema; (2) a case of Hysterical Paraplegia and one of Hemiplegia; and (3) some Illustrations of Skin Disease.—Dr. J. A. Lindsay: A case of Acromegaly, with photographs.—Dr. C. E. Shaw: A case with a Malignant Growth in the Orbit.—Dr. H. L. M'Kisack and Dr. Lowry: (1) A case of Locomotor Ataxia in a young subject; and (2) a case of Paralysis Agitans.—Mr. A. B. Mitchell: (1) A case of Tumour of the Upper Jaw; (2) a case of Club Feet after operation; (3) a case of Necrosis of the Skull; (4) a case of Removal of Both Pectorals; and (5) a case for Diagnosis.—Mr. Robert Campbell: (1) A case of Congenital Deformity of the Hand and Forearm combined with Obstetrical Paralysis of the Face; (2) a case of Muscular Dystrophy; (3) two cases of Spina Bifida (excised); (4) the Result of Excision of a Large Hairy Mole; (5) a boy operated on twice for Intussusception and once for Radical Cure of Hernia; (6) a case from which a Large Hydrencephalocele was excised five years ago; and (7) a case of Deformity of the Elbow resulting from a fracture of the humerus.—Mr. Andrew Fullerton: (1) A case of Simple Ulcer of the Bladder successfully treated by suprapubic cystotomy; (2) a boy with a Testicle in the Perineum (Ectopia Testis Perinealis); and (3) a case of Papillomatous Synovitis of both Knee-joints successfully treated by partial erasion.—Mr. James Craig: Two similar cases of Imperfect Development of the Eyes occurring in sisters.—Dr. J. C. Rankin: (1) Two cases of Lupus treated by the Roentgen Rays; and (2) two cases of Lupus treated by the Finsen Light.—Dr. John McLeish: A Cerebral Case for Diagnosis.—Dr. Thomas Houston: A case of Acne treated by injections of sterilised staphylococci.—Dr. J. R. Davison: A Rare Form of Skin Disease.

Reviews and Notices of Books.

Materia Medica of India and their Therapeutics. By RUSTOMJEE N. KHORY, M.D. Brux., M.R.C.P. Lond., &c., and NANABHAI N. KATRAK. Bombay: Printed at the *Times of India* Press. 1903. Two vols., pp. 1428.

THE authors believe that hitherto there has been a gap in available information concerning Indian materia medica and therapeutics and in these two portly volumes they endeavour to supply the need. Their contention is that in India drugs are in use which, though crude and often imperfectly prepared, have for ages satisfied the wants of the people and that what they term the "Western Materia Medica" is either not liked or cannot be afforded. The prefatory remarks are not very logical or very convincing; the authors, no doubt with good cause, speak rather disrespectfully of the knowledge of indigenous practitioners or hakims who employ "remedies and drugs handed down from father to son." They state that ages of experience have shown that their drugs really possess marked therapeutic virtues, and yet, thanks to the *vis medicatrix naturæ*, most patients "do not come to grief by this haphazard mode of treatment." The authors, in spite of the title, have not limited themselves to Indian drugs but have placed side by side with them the drugs generally used by western nations; sometimes there is an indication when the particular drug has received official recognition but more frequently this is ignored; for "western" readers it is disappointing not to find reference to the well-meaning but slender volume, the Indian and Colonial Addendum to the British Pharmacopœia. It is stated, however, that the General Medical Council publishes a revised list "from time to time every ten years"; this is scarcely accurate, although desirable. It is, however, an error shared by many other writers. In the section on pharmaceutical operations many interesting Indian terms and Indian methods are described—e.g., incineration, which is effected by burning a number of dry cow-dung cakes round the crude metal in coarse powder wrapped up in jambul leaves, folded in rag and covered with clay. From this point it is extremely difficult to follow the plan upon which these volumes have been compiled; there is no table of contents and the title pages of the two volumes give no assistance. The headlines of the different pages are not always trustworthy guides: thus tables of classification of alkaloids and glucosides are to be found under the heading of "Pharmaceutical Operations," and the same headline also appears above conditions which modify the action of drugs, incompatibles, poisons, and antidotes. Sections on Organotherapy and Sero-therapy are separated from the organic drugs of animal origin by a few pages devoted to the form

in which medicines can be used. This lack of order must seriously militate against the use of these volumes by students and it is not compensated for by the index with which each volume is supplied. The most consistent section in the first volume is that which deals with the organic carbon compounds but this is disfigured by numerous misprints of common medical and chemical terms, and yet this section shows clearly that the authors have kept themselves well informed concerning recent advances in "Western Materia Medica." The first volume concludes with a classification of medicines according to their effects on the human system, with nearly 180 pages of "Therapeutics," this term being employed for long lists of drugs after the names of different diseases. Apparently the intention has been to limit these lists to the substances mentioned in this volume but the authors have allowed some drugs of vegetable origin to creep in as well as some curious names, such as "Panchnimb-churan" (p. 458), which does not occur in the index of either volume.

The plan of the second volume is much more satisfactory. There are only three sections dealing respectively with organic drugs derived from the vegetable kingdom, arranged according to their natural orders, with their classification according to their physiological effects on the human system, and, lastly, with their therapeutics, as in the first volume. The general principle adopted in this volume is to give a description of the *habitat*, characters, and properties common to the members of the natural order before dealing with the individual plant; after giving the *habitat* and the parts used, the plant is identified under the vernacular terms employed in different countries or different districts, then the characters are described, the constituents and preparations are named, and the actions and the uses are given from the therapeutic side. Questions of physiological actions or modern researches are rarely mentioned or only in such brief terms as to convey but little information.

It is possible that these volumes may be consulted with advantage by "western" practitioners when engaged in the East and anxious to know something of the local remedies but the work must be used with great discretion. The following passage will show how far the thought of the East is from that of the West. "As a stimulant it is given in low fevers, epilepsy, and as a deobstruent and depurative in parotitis, dropsy, and other glandular diseases. It is an ingredient of various approdisiac *(sic)* confections. As a poultice it is applied to paralysed limbs and rheumatic swellings." A few lines lower we are told that this same drug acts by setting up emesis, that it is a diuretic, an astringent, an anthelmintic, that it is burnt as an incense, and that it is regarded as an insectifuge and insecticide for fleas, and so on. It is right, we think, to withhold the name of such a marvellous drug but the above is all culled from p. 628.

A Text-book of Quantitative Chemical Analysis. By J. C. OLSEN, A.M., Ph.D., Professor of Analytical Chemistry in the Polytechnic Institute of Brooklyn; formerly Fellow of the Johns Hopkins University. New York: D. Van Nostrand Co. 1904. Pp. 513. Price $4.

COMPLAINT is often made, with some justification we are bound to own, that too many text-books on the elements of chemistry and on simple qualitative analysis are published which cannot lay claim to any novelty in regard to the treatment or discussion of the subject. However true that may be of qualitative analysis the same can hardly be said of books on quantitative analysis. They are, in fact, comparatively few in number. The classic work is, of course, that by Professor Fresenius, to which we may add Sir William Crookes's "Select Methods in Chemical Analysis." Methods of analysis, however, are constantly being improved and modified with the view of yielding more accurate results. In particular considerable advance has been made with electrolytic methods of analysis and a section of the work before us by a well-known American analytical chemist gives interesting details of the application of electrolysis to the analytical determination of metals. In America analytical chemistry is making decided progress and, as a rule, the American chemist is characterised by his devotion to those details which are essential to really accurate results.

Dr. Olsen's book is divided into nine sections, in which the determination of metals, acids, the analysis of alloys, of minerals, electrolytic methods, volumetric analysis, oxidation, reduction and precipitation methods, and technical applications all receive adequate treatment. The author's familiarity with manipulative details is evidenced in his excellent instruction to the student on the precautions to be observed in order to attain accurate results and to facilitate their completion. We observe that the text is throughout well in accordance with modern developments of the subject which reflects great credit on the author in view of the large amount of periodical literature appearing in civilised countries recording from time to time the latest methods of analysis adopted by chemists in all parts of the world. The literature of quantitative analysis is, in fact, scattered and the book which, like the one before us, aims at successfully presenting an intelligible synopsis of these advances is obviously helpful. Moreover, there can be little doubt that the value of quantitative chemical analysis as regards its application to the arts and industries is rapidly growing in appreciation. Since many of our industrial operations are at some stage or other based on chemistry it is obvious that a high standard can be obtained only by adopting a system of scientific control over the industrial processes concerned. Dr. Olsen has produced a very useful and up-to-date guide on the subject.

A Text-book of Physiological Chemistry. By OLOF HAMMARSTEN of Upsala. Translated by JOHN A. MANDEL, D.Sc., Professor of Physiological Chemistry in New York University. Fourth edition. New York: John Wiley and Sons. 1905. Pp. 703. Price 17*s.* net.

IN this edition, which is translated from the fifth German edition, some of the older or at present untenable statements have been eliminated and certain chemical methods—not important for the physician or the student—have been less fully treated in order to give space for an account of the recent great advances in this subject and not to cause a too great increase in the size of the book.

The introduction is one of the best chapters in the book and will well repay perusal, for it deals with the fundamental questions of animal oxidations. Even on such a fundamental question as oxidation processes in the body, the very complexity and diversity of the views are set forth, including those of Pflüger, as dependent upon the special constitution of the living protoplasmic substance, the "biogen" theory of Verworn and the "active proteids" of Loewy. The theory of *catalases* which are supposed to liberate molecular oxygen and the still more modern and questionable view of oxidases are also considered. Even in ordinary combustion —e.g., that of wood or oil—the substances themselves do not combine with oxygen. It is only after the action of heat has decomposed these bodies to a certain degree that the oxidation of the products of such decomposition takes place and is accompanied by the phenomena of light. The animal body may also have a source of energy in the cleavage processes which are not dependent on the presence of free oxygen, as, for example, in living muscle. The chapter closes with a general description of the intracellular and extracellular enzymes and their actions.

In the chapter on the "Protein Substances" the recent advances in our knowledge of the hydrolytic cleavage

products of peptic and tryptic digestion are fully set forth The older view, that in peptic digestion only proteoses and peptones and no simpler cleavage products were formed, is now known not to be true. So also the "antipeptone" of Kühne is now known to undergo further cleavage. A full account is given of the hydrolytic cleavage products, such as alanin, aspartic acid, glutamic acid, and so forth, and the hexon bases, arginin, lysin, histidin, and so on.

Chapters III. and IV. deal with the carbohydrates and the fats. Chapter V. treats of the animal cell, and here we have a particularly full account of nuclein bodies and that important group of derived substances called the purin bodies. Naturally from one who has contributed so largely to the study of blood as Hammarsten we have a specially thorough and critical account of this fluid. On p. 159 the translator has introduced a word unfamiliar to English ears, "The teleostei are the first ..... to show an independence of the osmotic pressure of the inner *milieus* and the surrounding medium." Attention is prominently called to the fact that chlorophyll and blood pigments are closely related and are constructed from the same mother substance as one of "the greatest biological importance." There is a good summary of the very varied views held regarding coagulation of the blood. Then follow chyle, lymph, transudates and exudates, and then the liver. Chapter IX. deals with digestion. Some text-books hardly recognise the importance of saliva as an active medium by which a constant stream conveying the dissolved bodies passes into the blood from the intestinal canal during digestion. The recent observations of Pawlow are fully set forth and so are the actions of entero-kinase and the remarkable ferment crepsin discovered by Cohnhein in the mucous membrane of the small intestine, a ferment which Vernon has recently shown to be present in almost all the organs of the body. It does not act on fibrin, though it acts on the products of proteid digestion—proteoses and peptone—and on casein. The antipepsin, which prevents self-digestion of the mucous membrane and which is present in intestinal worms, is also mentioned. In addition we now know there is a gastric lipase or fat-splitting ferment which can act only on fat in a state of fine emulsion, as in the yelk of an egg, cream, or milk. Thus the fats of these foods may undergo partial digestion by the gastric juice. From the intestinal mucous membrane an antitrypsin can be obtained. The whole question of ferment—i.e., enzyme action—is assuming a new phase. By feeding an animal with a special food ferments are produced which are not present when that food is withheld, or in Brocard's dictum, "*C'est l'aliment qui fait le ferment.*" The remaining chapters deal with the connective tissues, muscles (including their metabolism), nerves, organs of generation, milk, urine, and skin. The last two chapters are on respiration and metabolism. The last gives a broad all-round view of the subject, a kind of *résumé* of the chemical processes occurring in the organism under different conditions.

Altogether this is one of the most compact, comprehensive, suggestive, and readable of the works on physiological chemistry which is somewhat liable to prove a toilsome study if the work be too largely chemical and too little physiological. There are no figures in the text. There is an uncoloured plate of spectra at the end and there is also an excellent index.

The Study of Chemical Composition. By IDA FREUND, Staff Lecturer and Associate of Newnham College, Cambridge. Cambridge: University Press. 1904. Pp. 650. Price 18*s.*

THIS is an admirable essay on the subject of chemical composition approached from the point of view of historical development. It is well to pause now and again in order to review the situation so far as it has advanced. There is a tendency amongst many workers in the field of science to become so absorbed in modern developments or their own particular branch of research that the complete history or the harmonious whole is left out of consideration. To such Miss Freund's essay may be strongly commended. Others, though not engaged actively in chemistry but who care to interest themselves in the position of chemical science and as to how that position has been built up, will read the book with profit. The study of Miss Freund's presentation of historical developments on the subject cannot, of course, pretend to take the place of extensive reading of original memoirs but it will admirably serve the purpose of those who have not time to spend in the laborious work of referring to scattered literature on the points dealt with. In fact, one of the most valuable features of her essay is that it contains the pith and substance of those original contributions which have given progress to chemical science. In the introduction the author generalises on the scope and the methods of the natural sciences and the study of facts by observation and experiment (with historical instances). The steps from observation to the detection of uniformities, to the consequent discovery of laws and the application of discovered law to the explanation of further facts (the deduction method) are next discussed in clear terms and the qualifications of a good working hypothesis are considered in natural sequence. After this interesting, though somewhat short, introduction Miss Freund proceeds to discuss the theories of combustion and this subject, of course, is perhaps one of the most important in connexion with the history of chemical science. Indeed, combustion may be said to be the foundation of chemistry. The discovery of oxygen, of nitrogen, and of air was the outcome of the correct observations made in regard to the nature of combustion. The author thus develops her subject through 19 chapters, each and all of which afford interesting reading. To many readers the nineteenth and last chapter, on the ultimate constitution of matter and the genesis of the elements, will appeal strongly as an attractive review of recent developments. The story of the genesis of the elements so vividly told by Sir William Crookes, of the fruitful researches amongst the stellar world by Sir Norman Lockyer, of the relations between electricity and matter by Professor J. J. Thompson as well as Sir William Crookes, and of the discovery of radio-activity as an atomic property by Madame Curie affords attractive and pleasant reading as bearing upon our knowledge of the constitution of matter. Miss Freund concludes her essay appropriately enough by referring to an impression prevailing amongst the general public that the recognition of the divisibility of the atom has dealt a deathblow to that atomic theory which was founded by Dalton just 100 years ago. This misconception (if it exists) had its origin likely enough in that subtle phrase which Mr. Balfour employed in his presidential address before the British Association for the Advancement of Science at Cambridge when he said that matter is not merely explained but explained away by assuming that the atom is now no more than the relatively vast theatre of operations in which minute monads perform their orderly evolutions while the monads themselves are not regarded as units of matter but as units of electricity. "Nothing," writes Miss Freund, "has had to be given up, nothing to be modified, but there has been deepening of the foundation, extension of scope, correlation with other sciences." Miss Freund has provided excellent intellectual pabulum in this admirable essay which we are sure will be read with pleasure and profit by all those eager to get a clearer glimpse into the nature of things.

LIBRARY TABLE.

The Essentials of Chemical Physiology, for the Use of Students. By W. D. HALLIBURTON, M.D. Lond., F.R.S. Fifth edition. London: Longmans, Green, and Co. 1904. Pp. 224.

Price 6s.—This book runs so rapidly into further editions (which is evidence of its popularity and success) as to leave little that is fresh to say from the point of view of the reviewer. In the present edition some important changes have been made in the arrangement of the exercises. To begin with, there is a new first lesson introduced on the detection of the elements contained in substances of physiological interest. This naturally connects the work of the student passing from the study of pure chemistry with that of chemical physiology. The fats again are now made the subject of a separate lesson. Some new exercises have been inserted and a few of the advanced lessons have been rewritten. This is the case with those relating to milk, pancreatic digestion, muscle, and Kjeldahl's method of estimating nitrogen. This method, however, must be modified in the case of certain nitrogen-containing substances—for example, nitrates, or even uric acid, require the addition of a reducing substance such as sodium thiosulphate coupled with phenol to prevent loss of nitrogen. The book fully maintains its educational character.

X Rays: their Employment in Cancer and other Diseases. By RICHARD J. COWEN, L.R.C.S. Irel., L.R.C.P. Irel., &c. London: Henry J. Glaisher. 1904. Crown 8vo. Pp. 129. Price 2s. 6d. net. This small book contains nothing startlingly new or original. While ostensibly written to assist general practitioners who may wish to use the therapeutic properties of the x rays in treating their patients, it is difficult to imagine a work of 129 small pages doing more than merely touching the fringe of the subject and being used as the sole guide by anyone seriously contemplating the pursuit of x ray work. The first chapter on the Focus Tube is really a short treatise on the x rays and their effects, while the second, on the Coil, is conspicuous by the very few references to the subject of its title. On p. 41 the x rays are described as longitudinal rays, which is not in accordance with the views of our most eminent physicists. In the description of the technique the method of recording the volts and amperes in the primary circuit of the coil is still adhered to. However useful this may be to an individual using the same equipment it is of little use to those who may wish to copy the procedure, unless their apparatus happens to be an exact counterpart—a very unlikely contingency. A record of the length of the alternate spark gap when working with a tube of well-known make and pattern is much preferable. In the case of a book published towards the latter end of 1904 we naturally expect at least some reference to the use of a milliamperemeter in circuit with the tube. We notice what is said regarding the treatment of nævi and port-wine marks and the removal of superfluous hairs by means of the x rays. The opinion of x ray workers of large experience is not entirely in favour of this method, the results not justifying the risks necessarily incurred. There are errors in spelling and at least one of the blocks has been misnamed. The book adds nothing new to our knowledge of x ray therapeutics although it may be useful to those who would like to acquire a smattering of the subject.

Premature Burial and How it may be Prevented. By WILLIAM TEBB, F.R.G.S., and Colonel EDWARD PERRY VOLLUM, M.D., late Medical Inspector, U.S. Army. Second edition, by WALTER R. HADWEN, M.D. St. And. London: Swan Sonnenschein and Co., Limited. 1905. Pp. 454. Price 6s.—The joint authors of this work attempt to show that the danger of being buried alive is very real and suggest that the duty of taking effective precautions against it is one that naturally falls to the legislature. In the preface to the second edition Dr. Hadwen writes that "the careful study of the subject which the work has entailed and the perusal of the evidence collected from various parts of the world, which has accumulated considerably since the first edition was published in 1896, have convinced me of the real need in this country of drastic and far-reaching reforms in connexion with our burial system." The most important conclusion is that no evidence of death is really satisfactory except that which is supplied by putrefaction, usually evidenced by the change of the colour of the abdomen, and that to insure this safeguard waiting mortuaries should be erected by every sanitary authority in the kingdom at the public expense. Such mortuaries would, however, be quite unnecessary if direct medical testimony were required.

JOURNALS AND MAGAZINES.

The Phonographic Record of Clinical Teaching and Medical Science.—The January number of this journal, which is now published quarterly instead of monthly, contains two excellent articles. The one by Mr. C. W. Cathcart, deals with the subject of Recent Methods of Diagnosing the Relative Conditions of the Two Kidneys in Surgery and is well worth study by those who wish to be *au courant* with the latest surgical methods of diagnosis. The article by Sir William R. Gowers is in his well-known exhaustive style and deals with Syphilitic Disease of the Brain. The number also contains the annual report of the honorary secretary of the Society of Medical Phonographers.

Reports and Analytical Records
FROM
THE LANCET LABORATORY.

SODIUM PERBORATE (WELLCOME BRAND).
(MESSRS. BURROUGHS, WELLCOME, AND CO., SNOW-HILL BUILDINGS, LONDON, E.C.)

SODIUM perborate is an interesting example of a compound which yields two well-known antiseptic substances on dissolving in water. It is a well-defined salt which in water gives off nascent oxygen, the solution containing practically borax and peroxide of hydrogen. On adding permanganate of potassium to the solution a brisk disengagement of oxygen takes place. Similarly, on adding chromic acid and ether a dense blue colouration is produced which dissolves readily in the ether. The blue compound is perchromic acid. Sodium perborate may be employed both as an internal and an external antiseptic. The solution is non-acid and free from irritating properties. The salt may be employed as a dusting powder to suppurating surfaces, the available oxygen being particularly helpful in such a case, the gas being brought into close and continued contact with the seat of suppuration. The salt is stable. Sodium perborate is obviously both a disinfectant and a deodorant.

"RECORD" OLD SCOTCH WHISKY.
(MESSRS. S. PAWKES AND SONS, 8 AND 9, KENDRICK-STREET, STROUD.)

The analysis of this whisky gave the following results: extractives, 0·01 per cent.; mineral matter, *nil;* alcohol, by weight 39·30 per cent., by volume 46·59 per cent., equal to proof spirit 81·64 per cent. The secondary products amounted to the following, given in grammes per 100 litres of absolute alcohol present: acidity reckoned as acetic acid, 26·00; aldehyde, 5·40; furfural, 1·60; ethers, reckoned as ethyl acetate, 40·00; higher alcohols, 65·00; and total secondary products, 138·00. These results indicate that this is not an all-malt spirit and that it contains not less, and probably more, than 50 per cent. of neutral spirit, whether it be called patent, grain, or anything else. The interpretation of analysis is supported by the character of the flavour, which is certainly feeble as regards malt. The whisky is therefore correctly described as a "blend."

CHOCOVUM.
(DE BRY, PARIS; AND 64, NEW OXFORD-STREET, LONDON, W.C.)

As its name implies, this is a preparation of chocolate containing egg substance. Some proof of the presence of egg

in the chocolate is afforded in the fact that the fat extracted was found to contain phosphorus. The total amount of fat was 40·85 per cent., part of which is, of course, derived from the cocoa. The proteid amounted to 8·26 per cent. and the mineral matter to 1·80 per cent. Chocovum is clearly a preparation possessing peculiar nutritive qualities. It is further palatable and doubtless contains nuclein and lecithin which are admitted to be valuable in promoting nutrition.

CALOX.

(MESSRS. MCKESSON AND ROBBINS, NEW YORK; LONDON AGENTS, S. MAW, SON AND SONS, 7–12, ALDERSGATE-STREET, LONDON, E.C.)

A novel and important feature of this dentifrice is that on application to the teeth or in contact with water it yields nascent oxygen. It is, therefore, not only antiseptic but deodorant—two desirable properties of a tooth wash. In addition it contains a well-known aromatic antiseptic which makes it agreeable to use. Calox is a dry powder containing a definite proportion of calcium dioxide, which in contact with acids gives an equivalent of hydrogen dioxide. Its oxidising and deodorising power was obvious in our experiments.

DIABETIC SPICE BUNS.

(MESSRS. CALLARD AND CO., 74, REGENT-STREET, LONDON, W.)

The statement that these buns are free from starch and sugar is according to our analysis correct. Carbohydrates are in fact displaced by proteid and fat. The proteid behaves in the same way as that present in milk. The fat amounted to 27·30 per cent. and the proteid to much the same figure. The buns are palatable and though free from sugar have a slightly sweet taste.

GILMOUR'S OATMEAL STOUT (QUAKER BRAND).

(MESSRS. ELLIS AND CO., HILL-STREET, RICHMOND, SURREY.)

It might be expected that the use of a proportion of Scotch oats in the brewing of malt liquor would add to its nourishing properties, since the oat contains considerably more proteid than does barley and moreover an abundance of phosphates. Our analysis of this stout proved such to be the case, for phosphates were present in distinct amount and the extractives contained 12 per cent. of proteid. The stout has an agreeably "smooth" and "soft" flavour and is free from an undesirable excess of carbonic acid gas. Further, it was in ripe and sound condition, being comparatively non-acid. The total extractives amounted to 5·20 per cent.; the mineral matter, 0·15 per cent.; while the alcohol by weight amounted to 5·87 per cent., by volume 7·32 per cent., and proof spirit 12·84 per cent. The stout is of good quality and well brewed, containing an excellent proportion of the soluble nourishing constituents of malt and oats.

SULTANA BREAD.

(MESSRS. PELLING STANLEY AND CO., LIMITED, 28, MATHEW-STREET, LIVERPOOL.)

The specimen loaf submitted to us proved to be simply bread containing sultana raisins. Each two-pound loaf contains about half a pound of sultanas. The idea is of some dietetic interest, since raisins are nutritive, while they tend, like most fruits, to promote intestinal action and to correct proneness to constipation. We should imagine that the school-boy would view this preparation with some interest and indeed it forms, especially when buttered, a wholesome departure from the daily slice of bread.

BITTER BEER.

(JOSEPH DUNN, 21, GREENHEAD-STREET, CALTON, GLASGOW.)

According to our analysis this beverage contains not more than 2 per cent. of proof spirit, so that it is safe to describe it as non-intoxicating. The extractives amounted to 1·90 per cent. and the mineral to 0·14 per cent. The extractives consist chiefly of sugar, since this substance amounted to 1·25 per cent. The beer is evidently a brewed liquor and contains the extractive principles of hops. The beer is bright and effervescent and the flavour for this class of beverage is not unsatisfactory.

New Inventions.

A SPRING STEM PESSARY.

WE have received from Messrs. Maw, Son, and Sons a new form of spring stem pessary. The general appearance of the appliance may be seen from the illustration. Both ring and stem are made of watch spring covered with indiarubber. We consider that this form shows many advantages over the rigid form of stem pessary and it should prove decidedly useful in cases of prolapse. The resiliency is a great advantage, but it would be an improvement if the screw portion which fixes into a tape bandage were made shorter so as not to project beyond the vulva to any extent.

A PORTABLE LAMP FOR USE IN LARYNGOLOGY.

THE accompanying illustration shows a portable lamp that I have adapted for use in examination of the ear and upper respiratory passages. It consists of a cycle acetylene lamp with a flat flame burner. The reflector is blackened inside to prevent unequal lighting of the field by reflected rays. In front of the lamp I have had a lens placed with a diameter of two and a quarter inches at a distance of three inches from the flame. This lens is fitted into one end of a tube which screws at its other end into a plate attached to the front of the lamp window from which the glass has been removed. By means of the screw thread on the tube the distance between the lens and the flame can be adjusted so as to give a beam of light with rays as nearly parallel as possible. The lamp bracket is attached to the top of an aluminium camera stand by a detachable metal plate and the lamp can be turned to one or other side. In the illustration the telescopic legs of the stand are shown closed up; they can, however, be drawn out so as to give various heights up to 45 inches from the ground. The lamp and stand together weigh 2 pounds 4½ ounces and they are easily carried in a bag as they take up comparatively little space. The light is very bright, the field illuminated from a head-mirror is clear and free from shadows, and I have found the arrangement most satisfactory. If preferred, the lamp can be attached by a moveable arm to a vertical rod which clamps on to the edge of a table. It is sufficient to put a small amount of calcium carbide in the chamber at the base of the lamp before going out and then fill the water reservoir when the light is required. There is no unpleasant smell from the lamp if the flame is not blown out or the carbide chamber opened while in the house. After use it ought to be cleaned out regularly. It may be obtained from Messrs. Philip Harris and Co., Birmingham.

WILFRID GLEGG, M.D. Edin.,
Senior Assistant Surgeon to the Birmingham Hospital for Diseases of the Ear, Nose, and Throat.
Birmingham.

THE LANCET.

LONDON: SATURDAY, MARCH 4, 1905.

Overwork.

THE death of an unfortunate baker's journeyman, concerning whom it was testified by a medical witness at the inquest that having heard the non-medical evidence and the history of the case he was satisfied that the deceased had died from heart failure accelerated by overwork and long hours, is an event not unworthy of notice by the hardest worked of all professions. In the case in question, on which we do not desire to lay any particular stress, it was shown that the man was accustomed to work in a bakehouse, probably not better than other bakehouses in respect of cubic space and air-supply, for 15 hours a day during the earlier part of the week and for 23 hours on Saturdays and that he had for some time been complaining of "shortness of breath," but he does not appear to have been subjected to any medical examination. On the day of his death, a Friday, he commenced work at 9 P.M. and would have gone on until the evening of Saturday. About 11 P.M. he ate some fried fish and returned to work but soon after doing so he fell forward and expired. There was no post-mortem examination and nothing to show what was the actual cause of death, which may, of course, have been of a kind with which the hours of work had nothing to do except perhaps by way of predisposition. Pathologically the verdict was entirely unsatisfactory but it was perhaps sufficient for the protection of society. It is at least certain that the deceased was not the victim of foul play and that his death could not be traced to any legal offence. The ready assumption by the medical witness that death had been due to, or accelerated by, overwork and the equally ready acceptance of this assumption by the coroner and the jury not unnaturally lead us to look a little more closely at the meaning of the word and to inquire whether what it denotes must indeed be recognised as a possible or perhaps a frequent cause of premature mortality. A general practitioner in full employment is probably the hardest worked of civilised men, both physically and intellectually, and his life is not a long one. According to the elaborate tables published by Dr. J. F. W. TATHAM in 1897 the comparative mortality figure for medical men was 966, as against 821 for lawyers, 533 for the clergy, and 953 for occupied males in the aggregate; and previous inquiries made by Dr. W. OGLE showed that, notwithstanding the generally high mortality of the profession, there were three numerically important headings, pulmonary tuberculosis, other diseases of the respiratory organs, and accident, under which this mortality was lower than that of the male population generally. On the other hand, the medical mortality from diseases of the liver, from diseases of the circulatory and urinary systems, and from suicide was greatly in excess of the average, whilst that from diabetes and from gout was more than three times as heavy as among the male population in the aggregate. Statistics of this kind are to some extent vitiated, of course, by the circumstance that they deal with the profession as a whole and furnish no means of discrimination between its successful and its unsuccessful members. The former, presumably, will furnish the examples of overwork and the suicides will be mainly recruited from the latter.

Ingenious attempts have been made by MASCHEK and other writers to classify work under the three headings of effort, velocity, and duration, and to arrive at formulæ which should show the proper relations of these three elements to each other. Such attempts have not been conspicuously successful but they at least serve to call attention to the distinctness of the elements in question and to the necessity of taking each of them into consideration when endeavouring to estimate the output of an individual. They remind us that the spurt of a tired man may be more injurious to him, may, in common parlance, "take more out of him" than sustained efforts more deliberately accomplished; and it must be remembered that the exceptional work of medical men is quite commonly of this character. A country practitioner who has come to the close of a busy day is suddenly called upon to make a hasty journey and on arriving at his destination to confront some emergency, surgical or obstetric, with which it will require all his energies to cope. It is a not uncommon experience in such cases that even when released he may not be able to obtain the repose which he greatly needs, either because of the pressure of new duties or because his mind cannot relinquish the memories of what has just been done. It is not everyone who can say, like the late Sir WILLIAM JENNER, "I don't think that anxiety about a patient ever kept me awake for five minutes in my life. I go to a bedside. I do my best. What more can I do? Why should I not sleep?" It is quite possible to find in these words an explanation of the fact that a life unusually filled with arduous work and with the most onerous responsibilities was nevertheless prolonged to the age of 83 years. Herein, it may be, should be sought the lesson which the contrast between longevity on the one hand and undue mortality on the other is best calculated to teach to those who will read the events aright. MASCHEK succeeded in establishing at least one formula which appears to show that the time occupied in strenuous effort should not greatly exceed one-third of the 24 hours, and the experience not only of Sir WILLIAM JENNER'S success but of the contrasts furnished to it by innumerable failures may be said to show with at least equal distinctness how much depends upon the complete relinquishment of effort, whether physical or intellectual, when the time for cessation from it has arrived.

We know too little about the physiology of sleep to dogmatise concerning the reasons which render it a necessity, but we know from experience that, save in the cases of very exceptional persons, the hours devoted to it cannot be curtailed without serious injury—injury which often falls upon the work and which never fails to fall upon the worker. The first Lord TRURO was one of the exceptional persons referred to and after sitting up over briefs and papers until three in the morning he would awake refreshed at six and would be ready for the labours of

another day. This life he led for many years but when he was Lord Chancellor his successive private secretaries rapidly gave way under the stress of his requirements and he himself, although he reached the age of 73 years, was incapacitated from exertion for some time before his death and spent his two last years in great suffering. Sir ANDREW CLARK was fond of telling his patients that "nature never forgets and seldom forgives" and the lesson which the words convey is a true and wholesome one. If we disregard exceptional cases we shall find it generally true that it is more easy to exceed the powers of the system than to husband them, and true also that to husband them is the way of wisdom. Of the three elements of work mentioned above that of duration is usually most under our command and those who would retain health and attain longevity should see to it both that their efforts are not too prolonged and that they are followed by corresponding periods of rest. Lord PALMERSTON, during his last premiership, made it an absolute rule after returning late from the House that he should never be disturbed on any pretext until he had been eight hours in bed; to the observance of this rule he was probably much indebted for the health and vigour which enabled him to spend most of the eightieth anniversary of his birth on horseback, inspecting fortifications in the neighbourhood of Portsmouth. If we turn to the element of velocity in work we shall find abundant reasons for the belief that its predominance implies an amount of strain greatly in excess of the actual accomplishment and calls for a corresponding equivalent of repose. The wise man, who realises that he must spend his life in living, will be all the more solicitous so to manage his expenditure that it may not be wasteful and he will be careful to guide his activities to this end. He will realise that his day's work, whatever its amount, will be rendered almost indefinitely more easy of accomplishment by method and arrangement and by steady refusal to break through these except for very cogent reasons. He will realise that exceptional duration and exceptional speed of work should be avoided whenever possible and that, when they cannot be avoided, they should be followed by correspondingly exceptional periods of repose. He will realise, lastly, what is perhaps the most important thing of all—namely, that men are not so much killed by work as by worry. He will render himself master of the course of his own thoughts and will dismiss from them for the time all anxieties as to which he has once arrived at a conclusion. Having decided to pursue a course of treatment he will wait until he next sees the patient before beginning to consider the character of its operation. He will not hunt his hares over again but will say with Sir WILLIAM JENNER, I have done my best, why should I not sleep soundly and so assist nature in preparing me for the cares and responsibilities of another day.

Arsenic in Textile Fabrics and Wall Papers.

THE Bureau of Chemistry at Washington has in recent years carried out a large amount of useful analytical work in matters affecting the public health of the United States of America. In Bulletin 86, 1904—one of the numerous reports from this department which suggest that similar official work should be done in this country—Mr. J. K. HAYWOOD and Mr. H. J. WARNER give an account of an examination of various wall papers and fabrics which was undertaken in order to ascertain whether they contained arsenic. This is a subject which was not fully investigated by the recent Royal Commission on Arsenical Poisoning, the reference of which was limited to foods and drinks. Incidentally, however, the minutes of evidence of that Commission gave some useful information on the subject as regards this country. The Commission ascertained that although Scheele's green and other salts of arsenic are still used in certain articles of domestic use, such as candles and tapers, their employment to colour wall papers has been discontinued. Arsenic, however, may be present in a variety of the "aniline" pigments; in a few instances (magenta dyes) arsenic may have been employed in the manufacture of the colour but in most cases the arsenic has been derived from the use of unpurified oil of vitriol in the manufacture of the dye. The Commission's inquiries also brought out clearly the extreme susceptibility of some individuals to quantities of arsenic much smaller than those which are ordinarily given medicinally and the importance of the individual factor cannot be lost sight of when dealing with the present question. The harmful effect of arsenic when present in articles of apparel, such as coloured stockings, is probably restricted to the production of local affections of the skin of one or another kind. With carpets, rugs, and furs, which do not come into contact with the skin, the risk lies in opportunities of inhaling or swallowing arsenical dust and this may be considered of importance only when the material is highly arsenical—for example, furs such as those in which Mr. HAYWOOD and Mr. WARNER found 17 grains of arsenic in the square yard. With wall papers, however, the case is different. It has been clearly shown by GOSIO and others that when ordinary moulds—mucor mucedo, penicillium glaucum, and especially penicillium brevicaule—are added to organic substances containing arsenic, arseniuretted hydrogen and other highly poisonous volatile compounds are evolved. A very delicate test for arsenic is based on this property of moulds. The moulds in question have been shown to be frequently present on papered walls and there is evidence that in these circumstances they cause the evolution of volatile compounds of arsenic, if arsenic is present in the paper. Mr. HAYWOOD and Mr. WARNER quote certain recent cases of arsenical poisoning attributed to wall papers. It is noteworthy that several of the patients did not suffer conspicuously from catarrh, sore throat, or diarrhœa; their principal symptoms were obstinate neuralgia, dyspepsia, and general lassitude. Obviously the association of symptoms of this kind with arsenic might easily be overlooked and caution is therefore necessary in assuming that the small number of cases reported of late years signifies that arsenical poisoning by wall paper has almost become a thing of the past. The important indications which may be obtained by examining the urine of the patient in doubtful cases, or the hair, as suggested by the Royal Commission, should not be forgotten.

Certain countries, notably Germany and Sweden, prohibit the manufacture or importation of textile goods which contains more than a minute and prescribed proportion of

arsenic. In America the matter is left to the different State legislatures and Massachusetts alone has a law on the subject. In this State, by an Act of 1900, textile fabrics in general must not contain more than one-tenth, and what are termed "dress goods" more than one-hundredth, of a grain of arsenic per square yard. These limiting quantities have been taken by Mr. HAYWOOD and Mr. WARNER as a basis of comparison when testing large numbers of different articles obtained from different sources in the United States. As a whole their results were satisfactory when judged by these standards. Many samples of furs, carpets, drapery, and "dress goods" contained no arsenic which was detectable by the delicate methods employed. The arsenic in some "dress goods," however, far exceeded the one-hundredth of a grain limit—e.g., a coloured print which yielded 0·24 grain of arsenic per square yard, and a number of black stockings, articles which seem specially liable to contain arsenic. As many as 537 wall papers of different colours and origins were tested. The results show that there is no commercial reason why arsenic should be present in plain, glazed, or coloured wall paper. The majority of samples were free from arsenic or contained merely a trace which could not be estimated quantitatively. One firm supplied a series of wall papers of many different colours in none of which was even a trace detected. Only a few wall papers transgressed the somewhat lenient Massachusetts limit of one-tenth of a grain per square yard. Two of these were of English manufacture. Several others, however, were very little below the one-tenth of a grain limit. The colours of the arsenical samples were various—reds, blacks, and greens were most often concerned. It is common in this country to see the legend "arsenic free" stamped at the back of a wall paper. But in view of the analyses of Mr. HAYWOOD and Mr. WARNER and of other evidence it seems desirable to receive these statements with some reserve. It is easy to declare that a paper is "arsenic free" if the sole test employed has consisted in applying a crude form of Reinsch test to a square inch of it. We should like to be certain that it is realised by the wall paper manufacturer that if he insists upon "arsenic free" colours the colour manufacturer can supply them and that when the term "arsenic free" is applied to wall papers it should signify that if tested by a delicate method such as the Marsh-Berzelius test the arsenic, if present at all, will be found in amounts which for practical purposes may reasonably be disregarded. In our present knowledge such a limiting quantity might perhaps be fixed as one-fiftieth of a grain per square yard and the results to which we have referred show that already the attainment of this limit is a matter which does not present any practical difficulty to certain manufacturers.

Shifting Dulness in the Thorax and the Abdomen.

IT is well that from time to time we should re-examine the evidence on which our opinions are based so that we may be able to give the reasons for the faith that is in us. There is need for this reconsideration of our conclusions in all branches of study and learning but especially is it wise in matters relating to the science of medicine. When a monograph is written on a small section of a subject it is perhaps possible for the author to be certain that he has included in it no statement the truth of which he has not personally proved. When, however, a general treatise on medicine or surgery is written it is obviously necessary for the writer to depend largely on the statements of his predecessors. He gives the views which are current at the time when he writes, except as to a few points where he may have made some original investigations. In this way statements are copied from text-book to text-book, each writer giving it on the authority of those who have written before him, and thus fallacies have been accepted as facts merely because they date from a hoary antiquity. It is therefore very necessary to test our facts from time to time. Many of the mistaken ideas which exist depend on false *a priori* reasoning untested by experiment. A good example of this was the old statement that heavy bodies fall more rapidly than light bodies and no one ventured to question the unimpeachable syllogism on which the statement was based until GALILEI showed by experiment that weight had nothing to do with the rate of falling. Mr. RICKMAN J. GODLEE recently delivered a lecture before the Hunterian Society and in this he drew attention to some erroneous teaching as to the physical signs of the chest and the abdomen. He showed that great variations, unmentioned in the text-books, occur in the position of viscera, as revealed by percussion, according to the attitude adopted by the patient. In order to investigate the resonance on percussion of patients from below when they are in a recumbent position Mr. GODLEE has had made a high table with a net top, so that he can stand underneath and examine the under surface of the body in any desired degree of recumbency. By means of this aid to examination and by other methods he has been enabled to demonstrate several important facts in connexion with the shifting of dull areas.

In any investigations such as those undertaken by Mr. GODLEE it is important to bear in mind that, as Dr. J. MITCHELL BRUCE has pointed out, the skin shifts to a great extent when the attitude is changed and thus a mark on the surface placed to indicate the level of dulness in a standing patient will apparently show a shifting of the dulness if he assumes the recumbent posture. Mr. GODLEE'S lecture dealt mainly with the question of shifting dulness and his conclusions differ greatly from the dicta of most of the text-books. It is generally taught that a dulness due to a pleuritic effusion or to an empyema shifts with position under the influence of gravity. Mr. GODLEE maintains that the dulness resulting from an empyema with no free gas does not shift at all and that the dulness of a pleuritic effusion shifts very little, if at all. If a pyopneumothorax be present of course the case is far otherwise and the fluid moves freely. If there is dulness in the back which shifts on placing the patient on his face or upon the opposite side Mr. GODLEE holds that the cause of the dulness is subdiaphragmatic. In support of this contention he cited several striking cases. It is often stated in works on physiology that the lowest part of the pleura, the so-called "pleural sinus," is never occupied by the lung, even at the acme of inspiration. This appears to be a fallacy, for in very thin persons the lung can be seen to descend to the very bottom of the pleural

sinus and the pulmonary resonance on deep inspiration may in many cases obliterate entirely the liver dulness in the back. Dr. S. RINGER has pointed out that if a patient who has a dull area in the chest or the abdomen is anæsthetised the extent of dulness diminishes and this may be very striking in a case of appendicitis. The diminution of dulness is probably due to the firmly contracted muscles pushing away the coils of intestine but when anæsthesia has relaxed the muscles the intestine slips in between the inflamed area and the abdominal wall and the dulness disappears. A similar phenomenon is noticeable in thoracic dulness but an explanation is more difficult. This variation of dulness under the influence of anæsthesia has an important practical application, for it points to the absence of any extensive inflammatory adhesions, so that in the case of an appendicitis the surgeon should take care to open the abdomen, not directly over the abscess but at a short distance outwards, so as to minimise the risk of involving the general peritoneal cavity.

Mr. GODLEE shows that in a healthy young man in a standing position there is usually very little resonance to be obtained on percussion of the abdomen. It is difficult to percuss out the edge of the liver but some resonance is generally present over the stomach and the cæcum. In the prone position there is still more dulness. The explanation is that in such patients the small intestine contains little gas. In cases of intestinal obstruction with much distension it is impossible to decide with certainty that there is free fluid in the peritoneal cavity, for dulness may be present in the flanks when the patient is lying on his back and yet the upper flank may become resonant when he is turned on his side, although no free fluid be present. There is no doubt about the fact but the explanation is doubtful. Further, Mr. GODLEE shows that a shifting dulness is the normal condition of both bases behind and is no proof of the existence of fluid in the pleural cavity. There is much more of importance in this lecture than we have been able to mention or to quote but we have said enough to show how valuable and suggestive the lecture was. We are too ready to accept as certain and finally determined all that we are taught or find in our text-books and a little healthy scepticism is of value if it leads to our re-proving the fundamental data on which our diagnostic art is based. From the wealth of his clinical experience Mr. GODLEE has been able to call many illustrations of the practical value of the facts which he stated and to the lecture itself we refer our readers.[1]

Annotations.

"Ne quid nimis."

A PROPOSED UNION OF THE MEDICAL SOCIETIES OF LONDON.

AT the annual general meeting of the Royal Medical and Chirurgical Society held on Wednesday, March 1st, the President, Sir R. Douglas Powell, in his address to the society, spoke of the benefits that would be derived by the profession from a union of the medical societies of London into one Royal Society of Medicine. Sir Thomas Smith, Mr. D. H. Goodsall, Dr. Theodore Williams, Mr. Timothy Holmes, and Dr. W. H. Allchin spoke in favour of this proposal, and it was moved by Sir Thomas Smith, seconded by Mr. Goodsall, and carried unanimously:—

That the council of the society be requested, with as little delay as possible, to invite the leading medical societies of London to arrange for a joint meeting, for the purpose of considering the advisability of amalgamating, and to take the necessary preliminary steps for that purpose.

The Royal Medical and Chirurgical Society has in this way taken the initiative towards a most important development and one which directly or indirectly has been advocated by those having the scientific interests of medicine at heart. The medical societies meeting in London, at any rate the more important of them, are not London societies only. Their meetings are very generally representative of the learning of the country and this would be still more the case if some practical scheme of consolidation could be arrived at.

THE VITALITY OF THE TYPHOID BACILLUS IN OYSTERS AND OTHER SHELL-FISH.

Dr. E. Klein has recently issued a preliminary report on the above subject at the instance of the Worshipful Company of Fishmongers. The experiments were made in order to ascertain the behaviour of the typhoid bacillus in oysters, cockles, and mussels, either when these were separately and directly infected with a definite quantity of the microbe or when they were kept for 24 hours in sea water previously infected with a definite quantity of the microbe. Dr. Klein draws the following interesting conclusions from the experiments described: 1. Oysters readily take up into their interior the bacillus typhosus which has been introduced into their shell or into the surrounding sea water. 2. Oysters, clean at starting, rapidly clear themselves of the ingested bacillus typhosus if they are kept in clean sea water which is frequently changed. 3. Oysters, clean at starting, clear themselves of the ingested bacillus typhosus to a less extent and more slowly if they are kept in a "dry" state—i.e., out of the sea water. 4. Oysters from a polluted locality clear themselves of the ingested bacillus typhosus to a less extent and at a slower rate, even if kept in clean sea water, than oysters clean at starting. 5. Oysters from a polluted locality retain the ingested bacillus typhosus to a markedly larger extent if kept "dry"—i.e., outside the water. 6. The process of "clearing themselves" of the ingested bacillus typhosus cannot be owing to the oyster merely "passing out" the ingested bacillus typhosus but must be due to a large extent to an inherent power of the oyster of *directly devitalising the microbe*. The experiments with the "dry" oysters prove this and it is also evident from the rapid rate at which the microbe disappears from the oysters kept in clean water if compared with the very small number of the microbe (bacillus typhosus) found at the same time in the surrounding sea water. 7. Oysters which have been infected with the bacillus typhosus and which were then kept in a "dry" state till they had practically cleared themselves of the microbe, when subjected to re-infection with the bacillus appear less capable of dealing with this microbe, even if they be kept in clean salt water, than the re-infected oysters which have always been kept in the water. This could be explained by the obvious supposition that oysters, by being kept for some days out of the water, are not possessed of the same degree of vitality and activity of their tissues as are oysters which have always been kept under normal conditions—i.e., in water. 8. Oysters from a polluted locality, and containing a large number of bacillus coli, very rapidly clear themselves of this microbe, both those kept in, as also those kept out of, the water. This shows that bacillus coli is foreign to the oyster and is rapidly destroyed by it. When, therefore, it is present in the oyster

[1] THE LANCET, Feb. 25th, 1905, p. 480.

it must have been derived from the surroundings. 9. However largely affected with the bacillus typhosus, the oysters at no time present to the eye any sign of such infection; they remain in all parts normal in aspect. This is the case not only with the infected oysters kept in sea water but also with the infected oysters kept in the "dry" state. There was only one exception—viz., an oyster derived from a polluted locality, which oyster had been eleven days out of the water. 10. During the time of these experiments (part of September, October, and part of November) the oysters lived quite well in *sterile* sea water frequently changed. There was no alteration noticeable in the aspect of the shell-fish; they remained plump and juicy and capable of promptly and tightly closing the shell. 11. Cockles readily embody the bacillus typhosus present in sea water. While the number of these latter appears at first to diminish in the body of the cockles it soon increases to a considerable degree, for five days after the cockles had been removed from the infected water and kept in clean sand the number of bacillus typhosus exceeded three times the number initially present. Their subsequent diminution proceeded only slowly since even ten days after their removal from the infected water the cockle examined still contained in its body 69,000 bacilli. 12. Mussels also readily embody the bacillus typhosus; in fact, the analysis seems to show that mussels do so to an extent greater than was found to occur in oysters or cockles. As regards the fate of the bacillus typhosus in the mussels these appear to stand between oysters and cockles, since in mussels the bacillus undergoes gradual diminution; this diminution, however, is incomparably slower than in oysters but takes place somewhat more quickly than in cockles.

A LIBEL UPON HOSPITALS.

IN certain numbers of a periodical called the *Wide World Magazine* there once appeared a series of articles by an enterprising person calling himself de Rougemont which dealt, under the guise of truth, with imaginary adventures in Australia and the neighbouring seas. The firm of Messrs. George Newnes, Limited, which firm, we believe, published the adventures of de Rougemont, has brought out a magazine called the *Grand Magazine* in which it seems possible that an admirer of de Rougemont conceals his identity under the title of "A Medical Practitioner." The enterprising gentleman styling himself de Rougemont took in the *Wide World Magazine* and the British Association in his character of a traveller, and in a similar way, surely, "A Medical Practitioner" in an article called "Hospitals: their Use and Abuse," which appears at p. 182 of the *Grand Magazine* for March, has taken in Messrs. George Newnes, Limited. An editorial note prefixed to the article commences as follows: "The writer of the following article, who is well acquainted with the facts and vouches for the accuracy of his statements, points to certain defects in the management of our great hospitals." Let us now give some extracts illustrative of what "A Medical Practitioner" calls "easily verifiable facts":—

> It may be said with perfect truth that the girls and young women who attend the public hospitals gain the possible healing of their bodies at the expense of mortal injury to their souls. What, I ask, must be the moral effect on a modest girl who goes to a hospital complaining of some trivial ailment, and is stripped naked to the waist and subjected to the salacious scrutiny of some dozens of youths, who lay hands on her and maul her about to their hearts' content? It is immaterial whether she complains of or has anything the matter with her chest or not. She, in common with her sisters in misfortune, is utilised as "material" for the instruction of students. As in the other cases, any protest or objection and she is forthwith bundled out.
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> One girl, aged 18, told me she had been attending the hospital nearly every fortnight for over three years. Imagine how much modesty would be left in her after exhibiting herself in this fashion for years to many hundreds of students. There was not the slightest hope of cure or improvement, so that this girl was regularly exposed in this manner merely because she was "an interesting case."
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> In the wards it is no uncommon thing to see the visiting physician or surgeon pull down the bedclothes and exhibit a woman entirely naked, merely for purposes of demonstration. I have myself seen this done some hundreds of times.
>
> Eighteen months ago I was the unwilling witness of an even greater atrocity. A woman was dying of malignant disease of the stomach and the physician under whose *care* she was was delivering a clinical lecture, taking the unhappy woman as his text. In the course of his remarks he mentioned various ways of ascertaining the extent of the stomach, amongst them the method of inflating it with gas and then by percussion mapping out its boundaries. A student inquired precisely how it was done and the physician said he would show him. The patient was thereupon given a solution of bicarbonate of soda and this dose was immediately followed by one of tartaric acid. The effect on the poor woman was pitiful, as one can readily understand, for the stomach was instantly distended enormously, which would have been extremely painful had it been healthy; how much more so when eaten out with cancer? She was hours recovering from the effect of this entirely unnecessary experiment, and she died the next day.

These atrocities, according to "A Medical Practitioner," are committed more or less "in every hospital recognised as a place of instruction for students," and the editor believes that the person who could write such things is "well acquainted with the facts"! Of course, this statement is a stupid lie, and the firm of Messrs. George Newnes, Limited, ought to be ashamed of giving it currency and of publishing a shameful libel upon hospital practice.

PYROMANIA, A PSYCHOSIS OF PUBERTY.

IN the *Archives de Neurologie* for December, 1904, Dr. Raoul Leroy, assistant physician at the Evreux Asylum, refers to the medico-legally important subject of pyromania in young persons of both sexes, a form of mental disorder which leads to acts of incendiarism. "Whenever repeated fires occur," he says, "in a village or in the country suspicion generally falls on persons of incomplete mental or physical development—weak-minded youths or girls—among the inhabitants and it generally proves to be well-founded." The mental state of such incendiaries, says Dr. Leroy, is peculiar and characteristic. They are weak-minded and are often members of families in which epilepsy, insanity, or alcoholism occurs. Reference is made to the fact that among the peasant population of Normandy, where alcoholism prevails to a high degree, juvenile crimes of the nature of incendiarism are common. These feeble-minded delinquents are prone to set fire to buildings or other objects in revenge against their owners or in some cases merely to amuse themselves with the spectacle. A few cases, says Dr. Leroy, suffer from the influence of an obsession which irresistibly impels them to such acts, such cases forming a special form of insanity to which the term "pyromania" is applied. True cases of pyromania manifest themselves for the first time at the period of puberty. The following typical case is given in illustration of this affection. The patient or culprit in this case was a girl, aged 15 years, a domestic servant, who on three separate occasions had set fire to the house of her master. She was the child of respectable parents and at first no suspicion was entertained of her but on being questioned before the police at the third outbreak of fire she showed much agitation and finally confessed her guilt. "When she had stated the facts fully and was asked if she realised the wickedness of her crime," she replied, "Something supernatural urged me to set the place on fire." Although she was reasoned with and her wrong-doing demonstrated in the clearest manner "she remained unshakable and invariably repeated the same words in justification." She had no reason to hate her master, there was no motive whatever of vengeance that impelled her, only a presumably morbid impulse. The medico-legal inquiry revealed the fact that a highly neurotic hereditary taint existed in the family; the grandfather was a man of excessively violent disposition, a first cousin was liable to periodic attacks of insanity during which he wandered about, the grandmother committed suicide at the age of 62 years, and the patient's mother was a very nervous, emotional, weak-willed woman afflicted with coxalgia. The patient herself was a child of but little intelligence and

never could read and write correctly. Her character was excitable, violent, and impulsive, with a total lack of good judgment. At the age of 13 years she developed nocturnal somnambulism, walking all over the house in her sleep and having no recollection of it in the morning. The menstrual periods, which set in at the age of 15 years, were attended with headache, insomnia, and great nervous prostration. On one such occasion she had a hallucination that her bed was surrounded by flames and this was the starting point of her obsessions. Almost daily after this she felt the sudden morbid impulse to set something on fire. It grew stronger though she struggled against it, suffering great mental and physical distress in the process. The morbid obsession occupied her mind to the exclusion of all other ideas and caused such distress and agony that she could resist no longer. Taking a lighted taper she set fire to a packet of waste paper. This was followed by instant relief of distress and an agreeable feeling of satisfaction. These obsessions occurred from time to time and on three such occasions she set fire to outbuildings and parts of her master's house. The medical evidence taken before the magistrate in the trial of this patient showing the occurrence of insane impulses the patient was removed to the asylum. Dr. Leroy concludes that the morbid heredity on both paternal and maternal sides resulted in a brain liable to disorder and readily provoked to morbid impulse (in this case pyromania) on the occurrence of the stresses of puberty, a critical time in mental development.

LEPROSY AND THE LAW IN NEW SOUTH WALES.

THE statistics of the New South Wales leper lazaret at Little Bay, near Sydney, show that there were ten admissions and three deaths during 1903 and that 17 patients remained under treatment at the end of the year. In accordance with his usual custom, Dr. J. Ashburton Thompson, president of the Board of Health, gives copious clinical and etiological notes on the recent cases, one of which, moreover, presents some remarkable features in its social and legal aspects. The patient in question was a man retired from business and in easy circumstances. He was born in New South Wales in 1846 and had travelled all over that State but had never been outside it. When leprosy was diagnosed he made an application to the Board of Health for permission to be segregated in a house of his own under a section of the Public Health Act of 1902 which provides "that such person be ..... detained in such lazaret until released by order of the Board or be isolated in such place and in such manner as the Board directs." For this purpose he proposed to live in a house which stood detached in its own allotment in a suburb of Sydney on a broad road, 150 yards distant from any other house on the same side of the way. This was approved by the Board and the rules by which he was to guide himself while living there were laid down. The Board had used every possible precaution to avoid publicity in this as in every other case but the facts were divulged and the neighbouring property owners protested on the ground that the value of their property would be depreciated by the patient residing there. The house where he was living near by was boycotted and tradesmen refused to supply commodities, so that even food had to be bought at a distance and carried home by the purchasers. The patient was therefore ultimately compelled to take refuge in the public lazaret. The complainants, however, were not content with this result of their efforts but they attempted to obtain such an alteration of the law that it would be made illegal for the future to segregate any leper elsewhere than in the public lazaret. A Bill of which its proposer said: "The Bill provides that in the future the Board must send lepers to a reserve proclaimed by the Government for that purpose," was read the first time in the Legislative Assembly on July 15th, 1903, and a second time on the 20th of the same month. Dr. Thompson had in the meantime written to the State Treasurer pointing out that the proposed legislation was not justifiable on medical grounds and would occasionally have the effect of producing unnecessary hardship. Having passed in the lower House the Bill reached the Legislative Council on August 20th, was opposed by Sir Normand MacLaurin, and was thrown out. The leprosy returns seem to show that the patient was still in the lazaret on Dec. 31st, 1903.

CURRENT THEORIES OF THE HEREDITARY PROCESS.

THE fifth lecture of the series[1] was delivered by Professor W. F. R. Weldon on Jan. 24th at University College, London, and dealt with the subject of the determinants of heredity. Many writers hold that some form of material "determinants" passes in the germ cells from parent to offspring, each group of determinants giving rise to the formation of one specific tissue or part of an organ. The idea of specific determinants was propounded by Mendel and Weismann. Roux and de Vries taught that the karyokinetic phenomena of cell division indicated a qualitative as well as a quantitative division of the nucleus and this idea has been further developed by Weismann. The number of chromosomes in the nuclei prior to cell division varies according to the species of animal and the tissue in which they occur. Hertwig has found in many invertebrates somatic chromosomes in the following numbers—viz., 16, 27, 28, 29, and 36. The worm *ascaris megalocephala* has two and four chromosomes respectively in its two subspecies. Human somatic cells contain 16 (Bardeleben) or 32 chromosomes, while in the sea-urchin the number is 36. There is no correlation, says Professor Weldon, between complexity of cell structure or function on the one hand and the number of chromosomes on the other. In the process of division each rod of chromosomes splits exactly into halves which separate and pass towards the centrospheres at the opposite poles of the dividing cell, so that each daughter cell receives an equal number of halves. The chromatin rods of a germ cell prior to maturation are fewer than the number contained in the somatic cells. Thus the germinal chromosomes in echinus are 18 while the somatic are 36 in number. This, Professor Weldon says, is a general rule. The longitudinal splitting of the beaded rods of chromosomes into slender rods of half beads is the normal process and this has been interpreted by Roux and Weismann as indicating a division which is both quantitative and qualitative of each chromosome. Weismann states that this cleavage process is continuously associated with a differentiation of the dividing parts, certain nuclear determinants being "sorted out" at each stage of division, so that cell differentiation takes place in various lines, leading to the formation of various tissues (nervous, muscular, glandular, sustentacular). In the process of conjugation of sperm and germ cells the centrosome or "archoplasmic substance" which forms the spindle fibres and takes an active part in the mechanics of the process of division is contributed by the spermatozoon. The centrosome is thus a motor mechanism which divides itself into two centrospheres, each centrosphere consisting of a central active corpuscle of protoplasm emitting contractile threads which attach themselves to the split-up segments of chromatin in the equatorial region of the germ cell body. By the contraction of these fibrils the chromatin segments are

[1] Abstracts of the first, second, third, and fourth lectures were published in THE LANCET of Jan. 7th (p. 42) and 21st (p. 181) and Feb. 4th (p. 307) and 25th (p. 512), 1905.

drawn away from the equatorial region towards the centrosphere at each pole of the cell, after which a septum is developed which completes the division of the cell body into the first pair of blastomeres. This process of cell division is repeated with almost mechanical regularity until the limit of numerical development is reached for the particular group of cells (tissue or part of organ) in question. Such a process as the "sorting of determinants"—that is, of elementary invisible microscopic constituents of the chromosomes postulated by Weismann—is, Professor Weldon thinks, quite irreconcileable with the facts of the equipotential nature of blastomeres in the early stages of cell division and with the facts of regeneration of lost parts, subjects which have been expounded in previous lectures. In normal cell division the chromosomes divide evenly, both in the qualitative and the quantitative sense, so that each of a pair of daughter cells receives at each division equal quantities of paternal and maternal chromatin from the parent cell. The changes which subsequently occur in the different cell lineages derived from the fertilised germ cells are largely due to other factors—viz., the relative positions assumed with regard to each other and to the cell mass by individual cells, and the differences of the incidental stimuli of the environment on differently placed cells (gravity, light and shade, pressure, relative food-supply). Boveri, who has given minute attention to the subject, concludes that it is the protoplasmic differentiation primarily produced by such incidental and environmental factors which determines in turn whether the chromosomes within the cells are to persist along one definite cell lineage as primitive chromosomes or are to undergo secondary differentiation in the variously differentiating somatic or tissue cells. Hence for normal development and perfect embryogenesis a very constant and "correct" environment is necessary.

THE MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.

THE quarterly meeting of the Medico-Psychological Association was held on Feb. 23rd at the North Riding Asylum, Clifton, near York, by the courtesy of Mr. J. Tregelles Hingston, the medical superintendent. The President, Dr. R. Percy Smith, occupied the chair. A motion was submitted, in which it was proposed by Dr. J. Carlyle Johnstone and seconded by Dr. E. B. Whitcombe "that the period of three years' training for nurses in an institution for the treatment of mental disorders, as prescribed by the regulations of the Medico-Psychological Association, must be served in one institution." A discussion arose upon the above motion, in the course of which different views were advanced. Dr. T. B. Hyslop and Dr. T. S. Clouston opposed the motion on the ground that it would be unfair to intelligent and aspiring nurses who were anxious to succeed and who after entering institutions where the education and training of nurses were inadequate found to their cost that this motion bound them to serve for three years in one institution so that time was lost until they had moved into an institution where adequate education and training could be secured. Moreover, the demand of such a long apprenticeship continuously at one institution was too exacting. Among others who took part in the discussion were Dr. G. M. Robertson, Dr. Ernest W. White, Dr. D. Yellowlees, Dr. T. Outterson Wood, and Dr. F. P. Hearder. An amendment was then proposed by Dr. Outterson Wood, duly seconded, and on a show of hands carried by 21 votes to 10 to the effect that the period of training for nurses should be two years and that it should not be served at more than two institutions. (The object of limiting the number of institutions to two was to discourage the few nurses who were mere "rolling stones.") This was adopted as a substantive motion and carried. Dr. Hyslop read a paper entitled "The Problem of the Insane in its Relationship to Overcrowding and Poverty." He argued that it was the duty of the association to constitute itself, owing to its special knowledge, its status, and its facilities for obtaining correct information, into a committee of inquiry into the subject of pauperism and overcrowding in their relations to insanity and mental degeneration. Collateral matters would legitimately come within the scope of the inquiry, such as the question of alien immigration, tramps and vagrants, and slum life, as also the action of alcohol and diet. An animated and lengthy discussion followed in which the President, Dr. Charles Mercier, Dr. Robert Jones, Dr. Clouston, Dr. T. Seymour Tuke, Dr. Outterson Wood, and others took part. No motion was, however, proposed at the termination of the discussion and the rest of the programme was adjourned to the next meeting owing to the lateness of the hour.

PARATYPHOID FEVER.

THE discussion which took place at the Royal Academy of Medicine in Ireland on Jan. 20th last[1] draws attention to a condition, at present known as "paratyphoid fever," which is not fully recognised. Many cases of continued fever are met with which clinically closely resemble typhoid fever but the blood does not give the Widal reaction and in most of the cases which have proved fatal the lymphatic structure of the intestine has not been involved. Certain observers maintain that instances of true typhoid fever occur without special changes in the intestine but other authorities contend that such cases are really caused by the "paratyphoid" infection. The disease and its relation to typhoid fever have called forth a considerable number of interesting and important contributions. The malady is caused by a micro-organism which appears to occupy a position intermediate between the colon and the typhoid bacilli and presents some of the characteristics of each. Two species of the "paratyphoid bacillus" have been separated, the *alpha* and the *beta*. There seems to be no clinical difference between the action of these two organisms. The symptoms of the paratyphoid infection are in many cases very similar to those which are met with in typhoid fever. The course, however, in the former is usually milder than in the latter and may even be afebrile; moreover fever, when present, may end by crisis. Diarrhœa is common in the paratyphoid infection. The duration of paratyphoid fever varies from 12 to 84 days. Epistaxis is a frequent symptom. Relapses, both first and second, have been recorded. Rose spots and a palpable enlargement of the spleen have been present in about one-half of the reported cases. The pulse is usually slow and irregular. Complications are common and certain of them which are very rare in typhoid fever have been repeatedly noted in paratyphoid fever. In the list are included pleurisy, endocarditis, meningitis, peritonitis, cholecystitis and cholelithiasis, orchitis, phlebitis, osteomyelitis, and others. An absolute diagnosis can be made only when the paratyphoid bacillus is obtained from the blood, the urine, the fæces, or some local lesion. In the light of present knowledge it may be stated that the diagnosis is justified if the paratyphoid bacilli are agglutinated by the blood serum of the patient in a high state of dilution and if typhoid bacilli are not agglutinated by it. The prognosis in paratyphoid fever is favourable. The term "paratyphoid fever" is to be regretted. Unless some definite connexion exists between this infection and that of typhoid fever some other name should be given to the disease. The symptoms of the two affections are certainly similar but the bacterial

[1] Vide THE LANCET, Feb. 18th, 1905, p. 430.

origin is different, and we should prefer to base the nosology of a fever more on its pathology and bacteriology than on the clinical picture.

LABOUR AND THE FERTILITY OF THE SOIL.

THE King out of his well-known kindness of heart has again given evidence of his sympathy with the genuine unemployed. Encouragement from such an august source is calculated to quicken the efforts of those individuals and public bodies who have power to help those out of work and we may therefore hope for some possible solution of this melancholy problem. Every indication points to our looking to the land as a means of relieving the present stress. If men cannot build, bake, or brew, they can dig and delve. An idle man and untilled land mutually absorb one another. A little arrangement and no able-bodied man willing to work need lack employment. Indeed, out of evil sometimes cometh good and when once men are set to work to develop the land public attention will be drawn in a surprising manner to its fertility and the easy means of maintaining the same. If there is not room in this little island for our surplus workers there is abundant opportunity further afield and Canada is probably the best example that could be quoted. The farmers there are, we understand, ready to take any number of able-bodied men. Only one doubt disturbs us: how long are we to expect the present extraordinary fertility of the Canadian wheat lands to last? There are already ominous signs of shortness of crop and evidence that the essential elements in the soil are "approaching a period." Any sudden failure will mean ruin to farmers who cannot "move on," like the old pioneers, to "fresh woods and pastures new" and privations to the farm hands. We should like to see in the multiplicity of pamphlets issued some figures in regard to the analysis of the soil and some evidence that the wonderful experiments and inventions of he late Sir John Lawes have been appreciated and utilised. "Back to the land" may be wholesome advice but the land must be fertile and kept so by scientific reasoning and application.

THE DEMONSTRATION OF TYPHOID BACILLI IN THE BLOOD OF CASES OF ENTERIC FEVER.

IT has long been known that the bacillus typhosus may be found in almost any part of the body and may set up morbid changes there and also that cases presenting the clinical features of typhoid fever may occur without the characteristic lesions in the intestine. The occurrence of a typhoid septicæmia has therefore been inferred and proved by the discovery of the bacillus in the blood of the patients. Within recent years a large number of investigations have been made by different observers using different methods to determine the frequency of the occurrence of the bacilli in the blood, the general result of which seems to be that they occur in almost every case and that typhoid fever even in mild cases is a true typhoid septicæmia. The question is carefully discussed by Dr. Jean Perquis of the Faculty of Medicine of Paris in an exhaustive monograph[1] embodying his own researches and including a critical investigation of the value of "hæmoculture" as an aid to diagnosis compared with that of the Widal serum reaction. The first observer to find the bacilli at all frequently was Castellani[2] who obtained them in 12 cases out of 14. The method which he adopted was to use a large quantity of the nutrient medium in order to lessen the bactericidal power of the serum of the patient. He used five or six flasks containing 300 cubic centimetres of ordinary peptone bouillon made slightly alkaline, adding to them quantities of blood varying from five to 50 drops, then putting them in the incubator at 37° C. Positive results were obtained in from 12 to 36 hours. Dr. Perquis has modified this method as follows: the arm of the patient is prepared as if for venesection, especial care being taken to insure the disinfection of the skin, and the spot at which the syringe is to be inserted is touched with a fine cautery point to insure destruction of all organisms within the skin. The blood when withdrawn is put into sterile tubes and defibrinated, after which about from 15 to 25 drops are inoculated into two flasks, each containing from 80 to 120 cubic centimetres of peptone bouillon; these are placed in the incubator at 37° C. and examined every 12 hours. He claims that this method is cheaper and more trustworthy than that of Castellani, the defibrination being especially important. The method was applied in 40 cases of typhoid fever, of which details are given, some being very severe, others mild in type, while in three there was a relapse. Positive results were obtained in 38 cases, while two were negative; these were, however, of great interest, since in them the blood was not investigated until after the twentieth day and it was found in the other cases that the later in the course of the disease the blood was taken the slower the growth of the organism was, while in the cases with relapse the bacillus disappeared after the primary attack to reappear during the course of the relapse. So far no constant relation has been found between the occurrence of the organisms in the blood and the occurrence of the Widal agglutination reaction, although the increasing difficulty of growth of the organism from the blood in the later stages of the disease suggests the development of more and more bactericidal substances in the serum. The occurrence of the bacillus in the blood is an early incident in the disease. Dr. Perquis found it in one case as early as the second day of the fever, Busquet found it in the fourth, and Hewlett, Courmont, Widal, and Pinat on the fifth. The bacilli are generally supposed to disappear from the blood towards the end of the third week but they have been found by Courmont on the twenty-eighth day, by Rnata on the thirty-fourth, by Pinat on the thirty-sixth, and by Auerbach and Ungar on the forty-second; but all these cases were of severe or fatal character. Comparing the utility of this method with that of Widal Dr. Perquis admits that the latter is easier, more rapid, and more convenient for ordinary cases, but he points out that the method of hæmoculture affords valuable information in the very conditions where Widal's reaction fails—namely, in the early days of the disease and in those cases where there has been a previous typhoid infection. Widal's reaction, moreover, cannot be regarded as an absolute proof of the typhoid nature of any given case, whereas the demonstration of the organism in the blood is conclusive. The main disadvantage is the time necessary for the method, which, allowing for the time required for control cultures when a positive reaction is obtained, varies from 36 to 60 hours. Dr. Perquis's work forms a valuable contribution to the literature of typhoid fever since it confirms the view that the disease is in all cases a general infection, includes a simple and practical method of culture of the organism from the blood, and demonstrates that the organisms may be obtained from cases not giving Widal's reaction.

[1] Contribution à l'Etude de la Présence du Bacille d'Eberth dans le Sang des Typhiques. Paris, Librairie des Facultés. 1904.
[2] Riforma Medica, 1900.

PUBLIC HEALTH IN BRITISH GUIANA.

MUCH information relative to the various departments of the public medical service of British Guiana will be found in the recently published report of Dr. J. E. Godfrey, the surgeon-general of the colony. The principal institutions for the reception of patients are the public hospital in Georgetown, with 700 beds; the public hospital in New Amsterdam, with 150 beds; the lunatic asylum; and the

leper asylum. Besides the two hospitals above mentioned there are also smaller ones in Suddie, in Bantica, and in Morawhanna. During the year ended March 31st, 1904, there were treated in these five hospitals 17,617 in-patients with 1728 deaths, while the number of out-patients for the same period was 67,189. Among the in-patients some of the more prevalent diseases shown in the statistics were as follows: dysentery, 513 cases, with 137 deaths; malarial fever, 3029 cases, with 92 deaths; pulmonary tuberculosis, 576 cases, with 233 deaths; diarrhœa, 541 cases, with 102 deaths; Bright's disease, 687 cases, with 255 deaths; ankylostomiasis, 428 cases, with 48 deaths; and filariasis, 178 cases, with five deaths. In the lunatic asylum 184 patients were admitted during the year and there were 104 deaths, the daily average number under treatment being 773. In the leper asylum 107 patients were admitted, 51 were discharged, and 76 died, the daily average number under treatment being 424. The birth-rate and the death-rate of the whole colony were respectively 29·3 and 28·9 per 1000, the deaths of infants under one year of age being at the rate of 205 per 1000 births. The death-rate for the city of Georgetown and its environs, exclusive of the country patients at the public hospital, was 44·1 per 1000, the deaths of infants under one year of age being at the rate of 334 per 1000 births. Small-pox of a mild type was prevalent throughout the colony; 1821 cases were reported and 1434 cases were treated at the isolation hospital; there were 14 deaths from the disease—i.e., a mortality of less than 1 per cent. A few of the small-pox patients were aboriginal Indians, one of whom gave her age as 112 years and several claimed to be well over 70 years. Dr. Godfrey gives a short account of endeavours which are being made, but with only limited success, to induce trained nurse-midwives to settle in the villages and rural districts.

CHYLOUS ABDOMINAL CYST.

IN the *Boston Medical and Surgical Journal* of Feb. 9th Dr. M. H. Richardson has reported a case of the rare condition of chylous cyst of the abdomen. A boy, aged 11 years, was referred to him in October, 1904. A practitioner sent a letter with the opinion that there was fluid of some kind in the abdomen which was not free in the peritoneal cavity. In the summer of 1903 fulness in the abdomen, especially at the navel and on the right side, was first noticed. There were nervous symptoms and at times acute indigestion. In the first week of October, 1904, there were nausea, vomiting, and diarrhœa for a number of hours but there was no pain. On examination the boy was found to be thin and cachectic with a very prominent abdomen. The lower ribs were pushed outwards. The abdomen was much distended and full of fluid which appeared to be free. The temperature was 100° F. Dr. Richardson diagnosed tuberculous peritonitis and opened the abdomen by a small incision between the umbilicus and the pubes. On incising the peritoneum he came upon a white fragile cyst which filled the peritoneal cavity. It was covered with small blood-vessels, most of which ran transversely. The incision was enlarged sufficiently to admit the hand. The cyst was then seen to be retroperitoneal and to extend up under the liver and to the right. It seemed at first to be a hydronephrosis; close to its upper part the right kidney was felt. Dr. Richardson decided to attempt enucleation of the cyst after tying the vascular peritoneal covering in sections. The cyst was then easily separated but the thin wall was ruptured here and there allowing a milky fluid to escape. It was emptied through an incision and the contents amounted to a gallon. The sac was carefully separated from all attachments, the dissection being made with blunt curved scissors and gauze. The ascending colon, the hepatic flexure of the colon, and the vertical portion of the duodenum were successfully separated. Whether the cyst was a dilatation of the receptaculum chyli or of one of its tributaries could not be made out. The boy rapidly recovered. He gained flesh and strength and was restored to perfect health. Microscopic examination of the cyst wall showed that it was composed of fibrous tissue. The contents were a milky liquid of the specific gravity of 1020, containing abundant albumin. On testing with osmic acid a slight blackish discolouration was obtained. Microscopic examination showed fine granules and numerous large granular corpuscles. Dr. Richardson emphasies the fact that before the operation the diagnosis of tuberculous peritonitis seemed quite certain and that relief of the condition present was possible only by operation. In many other cases of apparently hopeless disease of the abdomen he has operated and found an easily remediable condition. The moral is that in such cases the surgeon should explore the abdomen unless incurable disease can be certainly diagnosed.

THE PUBLIC HEALTH BILL OF THE BRITISH MEDICAL ASSOCIATION.

WE have received a copy of this short and simple Bill the main objects of which are to insure that none but those properly qualified shall be appointed as medical officers of health or sanitary inspectors and to give to all such officers and inspectors similar security in their tenure of office to that enjoyed by Poor-law medical officers and metropolitan medical officers of health. As the law stands no qualification is required for a sanitary inspector except in London; and as a general rule a medical officer of health or sanitary inspector is appointed from year to year only and thus has no true security of tenure. Poor-law medical officers and metropolitan officers of health are not appointed for limited periods only and are removeable only by, or with the consent of, the Local Government Board. "The duties of medical officers of health and inspectors," says the memorandum of the Bill, "are so important and responsible that they ought to be entrusted only to fully qualified persons whose position is satisfactorily secured." All our readers know our views upon this matter. No one with any knowledge of the local government of this country—apart from all medical bias—can doubt that the public health should now be placed in the care of a properly paid service the members of which should enjoy security of tenure and should only feel responsible to their authorities for any action that they may desire to take in the public interest.

AMAUROTIC FAMILY IDIOCY.

SINCE the description of amaurotic family idiocy by Sachs (1887) the occurrence of this disease has been noted by an increasing number of observers, but its pathology has only recently been studied. Dr. James McKee, professor of children's disease at the Philadelphia Polyclinic, has published in the *American Journal of the Medical Sciences* for January an interesting clinical and pathological study of a case. The patient was an infant, one year old, the child of healthy parents. There was no history of tuberculosis, syphilis, or insanity on the father's or mother's side. The child was considered a normal baby but he suffered much from constipation and took cold easily. At the age of one year he showed a square rachitic head, craniotabes, and a widely open fontanelle. He had a marked lumbo-dorsal curve and showed beaded ribs and both enlarged liver and spleen. The muscles of the neck were weak. The child was mentally backward and never learnt to speak. The rachitic symptoms improved slightly under treatment but during the early part of the second year blindness gradually set in. The child "took no notice of his surroundings and did not use his arms for grasping." Ophthalmoscopic examination showed the characteristic

retinal lesion of amaurotic family idiocy—pale areas of atrophy in the macular region of the eye. The upper and the lower limbs grew spastic with the progress of the disease and "claw-hand" showed itself. The great toe extended and the other toes flexed as in Babinski's symptom. The tendon reflexes were exaggerated and ankle clonus prevailed. Both Babinski's reflex and excess of plantar reflex were recorded. The pupils were dilated, unequal in size, and did not respond to light. There were slow nystagmoid movements of the eyes. Consciousness was dulled and the child was exceedingly somnolescent. The respirations were 36 per minute, the pulse was 136, and the temperature (in the rectum) was 95·6° F. The child eventually died from adenopathy, pneumonia, and bronchitis at the age of two and a half years. Professor McKee records the curious fact that since Sachs's observations it has been noted that all recorded cases of this affection were members of the Jewish race, a remarkable instance of racial proclivity. The disease is essentially one of infancy and affects girls more than boys in the proportion of 2 to 1. Its onset is generally between the second and tenth months of infancy. "In amaurotic family idiocy," concludes Professor McKee, "the cerebral development, till then normal, ceases at a very early age. The cerebral cells degenerate and idiocy results." That the disease should be common in the progeny of a hard-working self-denying race, a race in which the neuropathic factor is prominent, is, says Professor McKee, intelligible. Microscopic examination showed increase in size and a globular condition of the retinal ganglion cells and an entire absence of Nissl's bodies. The optic nerve showed absence of myelin in many of its fibres and the neuroglia of the nerve was increased (simple degeneration). The pathology of amaurotic family idiocy, its clinical characters, and its special proclivity to affect the Jewish race, are now fairly well known; its etiology still awaits discovery.

STERILISED MILK DEPÔTS IN PARIS.

Dr. Richard Caton, on behalf of a special subcommittee of the Liverpool town council, which has devoted considerable attention to the question of providing sterilised milk, has recently issued a memorandum in which he gives an account of his visit to some of the principal institutions of Paris in which sterilised milk is prepared and distributed for the benefit of the children of the poor. The method, he points out, is much more widely diffused in France than in England, being in active operation in no less than 65 French towns (as well as in 36 in other parts of Europe). In no place was he able to find that the system was a success commercially. Though, however, the adoption of the method is a considerable cause of expenditure—in many places the milk being given gratuitously and in others sold at half price—the results in saving life are so important that in no place is there any intention of abandoning the method on the score of cost. The sterilised milk is distributed at hospitals or dispensaries and every child receiving it is seen and examined from time to time by the medical officers of the institutions. According to Dr. Caton's observations two different types of distribution exist in Paris. The so-called "Goutte de Lait" method is carried on at the Belleville Dispensary which is situated in the midst of the poorest population of Paris. The milk is derived from a farm (where a sterilising apparatus is kept) in Normandy. The milk is sterilised at 108° C. and under pressure. The milk keeps perfectly good for a week or more and so some economy of distribution is effected. The milk is sterilised as soon as it is obtained from the cow. Dr. Caton suggests that if it were possible to obtain the milk from a farm close to Liverpool and to have the sterilising done at the farm Liverpool might secure the same advantage that is enjoyed at the "Gouttes de Lait." This system of Dr. Variot has been in operation for ten years and he is thoroughly satisfied with it; he has never seen a case of infantile scurvy attributable to the milk and he states that in about 4 per cent. of the children sterilised milk does not agree, that in a few its use is followed by anæmia, and that in others it causes constipation. In the other form of distribution in Paris, carried out amongst other places at the great Charité Hospital, the cans of milk are purchased from the ordinary dealer and the sterilisation takes place at the depôt at 208° F. in the hospital from which the milk is distributed. Dr. Caton points out that the one respect in which both these methods of distributing sterilised milk is superior to ours is in the fact that every child is under medical supervision. It may often happen, he adds, that some other ailment in addition to dyspepsia is present and in that case the giving of sterilised milk may not meet the circumstances fully. Though there may be great difficulties in providing medical attendance at the milk-distributing depôts in this country the question arises, he thinks, whether in bad cases it would not be well as a principle of routine to advise the mother to seek medical advice for the child.

PAPAIN.

IN a paper published in the *Annals of Botany* for January, under the heading of "The Proteases of Plants," Professor S. H. Vines records the results of some interesting experiments on the action of papain. Papain is the dry powder prepared from papaw, the "milk" obtained from carica papaya. It would appear that papaw has been somewhat difficult to obtain owing to the fact that the Americans took steps to secure for themselves all that could be found. It is now, however, "an open article" on the market in this country. The samples of commercial papain tested by Professor Vines were obtained respectively from Messrs. Christy, Finkler, and Merck. The action on fibrin of these different samples of papain was not uniform, Christy's proving to be the most active. All the samples of papain tested, however, proved capable of effecting complete proteolysis or, at any rate, peptolysis in various degrees. The action was more vigorous in the presence of hydrocyanic acid than in the presence of toluol and it was, on the whole, stronger in the alkaline than in the acid liquids though the difference was not great. With regard to autolysis, the results bring out again the specific differences in activity between the three samples of papain. The most striking tryptophane reaction was given by Finkler's papain, on account, probably, of its containing the largest amount of readily proteolysable proteid. With respect to the reaction of the liquid, Christy's and Merck's samples gave better results in acid than in alkaline liquids, whilst Finkler's was more active in an alkaline than in an acid medium. Experiments were made also in which the result could be compared between the fibrin-digesting and the peptolysing activity of the papain in each case. The results go to show that the various samples of papain experimented upon differ widely in their general proteolytic activity and in their relation to acid and alkali as well as to the various antiseptics employed. "One thing at any rate," concludes Professor Vines, "is made clear, that the last word as to the properties of papain will not have been pronounced until a series of careful observations shall have been made with perfectly fresh materials so as to avoid all those modifications that must necessarily accompany the preparation of the varieties of dried papain which have hitherto been used for investigation." The interesting conclusion is suggested that papain contains a fibrin-digesting but not peptolytic protease of the nature

of pepsin as well as a peptolytic but not fibrin-digesting protease of the nature of an erepsin. If this be so it will be the first clear demonstration of the existence of a pepsin in the vegetable kingdom. The experiments, though they may not absolutely establish this conclusion, at least indicate a method by which a physiological analysis of possible mixtures of enzymes may be effected. Probably by the application of this method to the fresh juice of the papaw the question will be settled for that plant. In the meantime, Professor Vines is investigating other plants and has already obtained some confirmatory results in the case of the hyacinth bulb, of the pineapple, and of yeast. In the early "sixties" Mayne Reid wrote a book called "Bruin," in which he gave an account of a "barbecue" held in the Southern States. One of the features of this was an ox roasted whole upon a kind of gridiron made of papaw wood, the sap of which Mayne Reid said had for years been known as imparting a peculiar tenderness to meat with which it came in contact.

FATAL RESULT OF A FALL OUT OF BED.

IN the *Journal of the Royal Army Medical Corps* for December, 1904, Major H. S. Peeke has reported a striking illustration of the fact that a fatal injury of the head or neck may result from a very slight cause. A private was taken to a military hospital on a stretcher at 1 A.M., complaining of pain in the neck and inability to walk. He was sober. A comrade occupying the next bed stated that about midnight the patient, who had retired early, rose, sat up in bed, lost his balance, and fell over on to the floor on his head. This statement was corroborated by the patient. Examination showed tenderness and pain in the neck and complete motor and sensory paralysis of the lower limbs. The temperature was 99° F., the pulse was 65, and the respirations were hurried and diaphragmatic. He was placed on a water bed and the pain was relieved by hypodermic injections of morphine and cold applications to the neck. The dyspnœa increased and he became comatose and died on the following morning. At the necropsy the body was found to be heavy and muscular. An incision was made from the occiput to below the seventh cervical vertebra, exposing the spinous processes. On inserting the finger a spinous process was found detached. There was a fracture through the base of the fifth cervical spinous process. There were also extensive hæmorrhage and rupture of the dura mater and anterior spinous ligament. The cord was not pressed on by bone but pressure from the hæmorrhage and from inflammatory effusion evidently was the cause of death. As the bed was only 18 inches from the floor fracture of the spine had not been suspected. It was thought that the patient was suffering from concussion o the spine or from hæmorrhage causing pressure on it. Therefore no operation appeared to be indicated and a rapidly fatal injury was not anticipated. The paraplegia at first extended as high as the middle of the breast. From the situation of the injury paralysis of the upper limbs might have been expected but they lost scarcely any power until just before death.

CHLORÆTHOFORM.

THE name chloræthoform has been given to a new anæsthetic containing chloroform and a small proportion of ethyl chloride suggested[1] by John Wade, D.Sc., and Horace Finnemore, A.I.C., of the chemical and pharmaceutical departments at Guy's Hospital. It has long been noticed that chloroform prepared from acetone is inferior in anæsthetic properties to chloroform derived from alcohol; with the former the patient shows a tendency to cough and to hold the breath, while the prolongation of the time of induction increases the risk of administering an overdose. A series of careful fractional distillations gave the writers the clue to this difference, for whereas acetone chloroform begins to distil at 55° C., that from alcohol begins to distil at 54° C. The fraction distilling at from 54° to 55° C. was proved to be ethyl chloride, which is present to the extent of about 0·05 per cent. and is formed during the process of manufacture by the action of chlorinated lime on alcohol. It is not formed, however, in the preparation of chloroform from acetone. As ethyl chloride induces anæsthesia rapidly, thus removing the irregularity of breathing and diminishing the time of induction, the conclusion was drawn that the difference in anæsthetic effect between the two kinds of chloroform is due to ethyl chloride. A small quantity of ethyl chloride was therefore added to chloroform prepared from acetone and the mixture was proved clinically to be equal to chloroform derived from alcohol. In a later note[2] the writers remark that pure chloroform acts rapidly and in a trustworthy manner in perhaps four cases out of five but the risk of accident is always present. This risk, it is probable, is less with chloroform made from alcohol. The 0·05 per cent. of ethyl chloride present in alcohol-derived chloroform is not sufficient, however, to eliminate all uncertainty and the addition of a further quantity is recommended. Chloroform derived from acetone mixed with 0·25 per cent. of ethyl chloride is stated to act satisfactorily and to give as good or better results than does chloroform made from ethyl alcohol.

[1] Journal of the Chemical Society, July, 1904.

THE CORRECTION OF LOCAL BIRTH STATISTICS.

IT is one of the anomalies of our modern methods of local self-government that, after considerable circumlocution, public bodies have to obtain at a price from local registrars facts which have already been gleaned at the expense of the public. Thus, at present, the medical officer of health must pay considerable sums out of the local rates in order to discover and to classify the causes of death of citizens within his district. His is often the first medical eye to see the record of "uncertified deaths," and occasionally after much delay he discovers a case which should without doubt have been promptly reported to the coroner. With the information so acquired the medical officer of health is enabled to apportion to their appropriate localities the deaths occurring away from home; this correction is an item of no small moment if his local sanitary authority has within its jurisdiction several public institutions for the care of the sick and the dying. Lately it has been recognised that birth statistics are vitiated from a similar source, for many strangers are delivered in lying-in homes and infirmaries for the poor, thus unduly raising the local birth-rate. The recognition of this fact led to a desire that sub-registrars should for a small fee issue to the medical officer of health a return of the residence of all such mothers. For a time this inexpensive and unofficial system was practised, until the Registrar-General issued a circular to his registrars instructing them that in future if a return of all the births were desired they may exact for it the same remuneration as in the case of deaths. This instruction appears to have been the unforeseen outcome of a resolution of the public health committee of Southwark passed in October, 1904, and circulated among the other borough councils in London. It is evidently to the interest of sub-registrars to insist on a high fee for limited returns in the hope of securing a request for complete information, and already 14 metropolitan local sanitary authorities have deemed it wise to order a full weekly return. It is found

[2] Chemist and Druggist, 1904, vol. ii., p. 611.

in practice that maternity institutions are unwilling to afford the necessary information to the medical officer of health direct and thus it appears to be a wise innovation to receive official details of the current births. Beyond the mere correction of the statistics of birth which this periodical return will effect, provided, of course, that there is a general interchange of information, the adoption of such measures should facilitate and check the investigation of the local prevalence of puerperal fever and of infant mortality as well as afford evidence of the existence of secret lying-in homes with their associated illegitimate births; it should also aid the working of the recent Midwives Act.

THE INTERNATIONAL CONGRESS OF MEDICINE AT LISBON.

IN connexion with the Fifteenth International Congress of Medicine to be held at Lisbon in April next year Messrs. Thomas Cook and Son have chartered a first-class ocean passenger steamer to convey members of the Congress and their friends from London. The vessel will be moored near the quay and in view of the pressure on hotel accommodation usual on such occasions will be used as a floating hotel during the period of the Congress—April 19th to 26th—an arrangement which will doubtless be appreciated by delegates.

THE FUTURE OF THE LONDON MEDICAL SCHOOLS.

UPON the moving of the annual report at the Court of Governors of Middlesex Hospital last week Dr. J. Kingston Fowler, senior physician to the hospital and dean of the Faculty of Medicine in the University of London, made a most important speech. His words arose out of the existing position at Middlesex Hospital, as one of the smaller medical schools of the metropolis, but they have a significance for every London medical school and, indeed, for everyone concerned in the future developments of the medical profession. Referring to the admitted gross abuse that exists in the out-patient departments of the London hospitals—an abuse by no means confined to the metropolis—Dr. Fowler mentioned an extension of the provident dispensary system as being the solution of the present position. By utilising the out-patient departments of hospitals as consulting-rooms for the poor and making the provident dispensaries feed the out-patient departments only with suitable cases two things would be at once gained. The general practitioners would no longer feel that the gratuitous treatment of all and every case by the hospitals was subjecting them to unfair rivalry, while the out-patient departments would only receive in *bulk* the number of cases that they were able to treat and in *quality* the kind of cases that they ought to be asked to treat. From this subject Dr. Fowler passed to a consideration of the present critical position of many of the London medical schools. He took it for granted that his audience was acquainted with this position owing to the report of Sir Edward Fry's committee which had been so recently published.[1] That report must have convinced many who were still doubtful that it was not only absurdly uneconomical but practically impossible for the 12 separate medical schools of London each to support a teaching staff able to deal completely with all the ancillary subjects and possessing all the necessary laboratories and class-rooms implied. The University of London will, it is hoped, soon possess a central school of science where every medical student can pursue the studies antecedent to his purely professional curriculum, but money, much money, is still wanted before that time arrives. But in the meantime the situation at some of the hospitals is acute and the number of medical students in London, despite the unrivalled clinical material of the metropolis, is rapidly diminishing. Dr. Fowler, who is in accord with many of those best acquainted with educational matters, considers that during the interregnum University College, London, and King's College, London, being definitely separated from their hospitals should form centres for teaching the ancillary sciences. This is the view that is supported by an influential group of London teachers, and, as is well known, steps have already been taken to give effect to it. There are contrary opinions upon the point, but such clear pronouncements as have already come from Dr. Fowler will go far to create a trust in the University of London and general agreement with the Dean of the Medical Faculty of that University.

[1] THE LANCET, Feb. 25th, p. 530.

A FATAL case of plague occurred in Brisbane on Jan. 2nd, being the first case since Sept. 15th, 1904. Up to Jan. 21st no other case had been reported but from Jan. 6th to 21st 1730 rodents had been destroyed and 861 had been bacteriologically examined. Of these latter three rats were found to be infected. As regards the Cape Colony the medical officer of health of the colony states that for the week ending Feb. 4th the condition of the colony as to plague was as follows. At Port Elizabeth no case was discovered but of 209 rodents bacteriologically examined 1 rat and 3 mice were found to be plague-infected. At East London 1 native male found dead was considered as being a "case suspicious of being plague." There were 301 rodents and 1 cat examined, of which 1 mouse was plague-infected. In other districts no case of plague in man or other animal was found. In the Mauritius 1 case of plague and 1 death were reported during the week ending Feb. 23rd.

THE adjourned discussion at the Royal Medical and Chirurgical Society on the Subsequent Course and Later History of Cases of Appendicitis after Operation will be held on Tuesday next, March 7th, at 5 P.M. Sir Richard Douglas Powell, the President, will open the discussion and will be followed by Dr. H. P. Hawkins, Mr. C. B. Lockwood, Mr. W. H. Battle, Sir William H. Bennett, Mr. A. W. Mayo Robson, and other speakers. Some further statistical tables will be provided at this adjourned meeting in addition to those which were provided at the meeting on Tuesday last. A demonstration with the epidiascope will be given by Mr. Lockwood. The change from the usual hour of meeting may be reckoned as an experiment, made in the belief that the majority of the Fellows would prefer the earlier hour.

ON the occasion of Dr. F. T. Roberts's resignation of the post of physician to University College Hospital, which he has held for more than a quarter of a century, his former house physicians are arranging to entertain him at dinner. Dr. F. W. Mott will take the chair and twenty-five of Dr. Roberts's old house physicians, including Mr. Stonham, Dr. Walter W. H. Tate, Mr. Percy Flemming, Dr. F. R. Blaxall, and Dr. T. Wilson of Birmingham, have already signified their intention to be present. The dinner will take place on March 29th. Further information can be obtained from Dr. Bertram L. Abrahams, 14, Welbeck-street, W., or Mr. R. G. Elwell, University College Hospital, W.C.

WE have received a cablegram from Professor W. Osler asking us to repudiate for him words that he has been described as using in his farewell address to the students of Johns Hopkins University. Professor Osler, in a speech which seems to have been considerably misunderstood on both sides of the Atlantic, referred to a humorous suggestion in a novel, but expressed no views of his own, as to the chloroforming of persons who have reached the age of 60 years.

THE annual clinical debate of the Chelsea Clinical Society

will take place on March 14th and 21st in the Chelsea Dispensary, Manor-street, King's-road, London, S.W. The debate will be opened by Mr. W. A. Lane and amongst the speakers announced are Dr. W. Collier (Oxford), Dr. F. J. Smith, Dr. H. Campbell Thomson, Dr. W. H. Goddard, and Dr. Leonard Williams.

Professor Sheridan Delépine will open a discussion upon the causes of the increased prevalence of anthrax in Great Britain at a meeting of the Incorporated Society of Medical Officers of Health to be held at 9, Adelphi-terrace, Strand, London, on March 10th, at 7.30 P.M. The chair will be taken by the president of the society, Dr. J. F. J. Sykes.

A PRESENTATION of a testimonial will be made to Dr. W. W. Ireland in the new library of the Royal College of Physicians of Edinburgh to-day, Saturday, March 4th, at 4.30 P.M., on the occasion of the fiftieth anniversary of his medical graduation.

THE MEDICAL MAN AS EXPERT WITNESS.[1]

BY W. B. RANSOM, M.A. CANTAB., M.D. LOND., F.R.C.P. LOND.

THE laws that of late years have been passed for the better protection of workmen from injury or disease produced by their work and the increasing tendency of all members of the public to fix responsibility upon and procure compensation for mishaps that befall them from others, whether individuals or companies, have undoubtedly led to a great increase in litigation in which medical evidence plays an important, if not a predominant, part. And however beneficent this tendency may be, in that it procures employment for a deserving body of men, it cannot be denied that the result is not altogether satisfactory to the medical men, the plaintiffs, or the defendants. The lawyers alone may possibly benefit from the complex mixture of medicine and law which is not proving restorative to either the physical or moral health of the rest of the community. While the whole blame for this state of affairs cannot fairly be laid at the door of the medical profession, yet I fear the attitude we have generally taken up when appealed to for expert opinion in connexion with litigation has not, as was hoped, greatly helped to the right solution of disputed points, has not simplified the administration of justice, and last, but not least, has not conduced to the dignity of our profession as one of science and honour. Let me, however, here state that in what I have to say I make no claim to purer ethics or a higher code of honour than the rest of my brethren and that although I think that often they have adopted an unfortunate attitude and found themselves in a false position, yet I believe that it is not from a blunting of the moral sense but from a mistaken notion of what honour requires from them.

That there are unscrupulous and venial men among us, as there are in all professions, is undoubtedly true, but of them I here take no note. We are, I believe, as a body neither better nor worse than other men of liberal education and have a sense of honour at least as acute as the average citizen. And yet things are not right. We need not go so far as the well-known classification of the followers of Ananias into liars, damned liars, and expert witnesses, but it must have struck many as a curious fact that while in an ordinary consultation it is the rarest thing in the world for medical men to differ, in the witness-box they never agree. In the drawing room, talking to the anxious friends of the patient upstairs, Dr. A indorses the diagnosis and delicately praises the treatment of his friend Dr. B, but in the county court he exposes to an indignant public the superficiality of his observations and the fallacies of his conclusions, insinuating at the same time the profound importance of his own vast experience. Dr. B naturally gives him a Roland for his Oliver and so the public are impressed with the accuracy of medical science and the impartiality of its exponents. The same pleasing spectacle is seen where we have a number of more or less eminent medical men on either side. To a certain extent there may be different testimony about matters of fact but to a much greater degree the differences turn on the relative significance of observed facts and in the absence of anything like mathematical exactitude in the present state of medicine there is here ample scope for the ingenuity of the witnesses. Thus a sarcoma is found in the abdomen of a man who alleges that he strained himself lifting a piece of coal. The medical men on the one side rake up all the cases in which a growth has followed an injury and suggest to the jury that nothing is more likely to occur, while those on the other pour scorn on the notion and discourse learnedly on cancer as a parasitic disease or a miscarried germ cell. Not long ago some distinguished and honourable medical men persuaded a jury that a man who died thin and pale succumbed to pernicious anæmia caused by an injury in the pit over two years previously. I venture to think that they would not have given that diagnosis or arrived at that etiology in an ordinary consultation in the patient's house. In another case of pain in the back the court was edified by the medical men on one side swearing to the existence of periostitis of the sacrum, which was flatly denied by their opponents. In those frequent cases of "railway" and "miners'" spine the opposing confident diagnosis of organic and functional disease, or even malingering, can always be counted on to puzzle a jury. The action of a sick club which, being dissatisfied with the continued backache of one of their members, called in a veterinary surgeon and had him examined before them is more to be commended than going to law. "Why, man," said the veterinary surgeon, "you've got rinderpest; you'll have to be shot!" The man bolted home. "Fetch out my pit clothes," he said to his wife, and went to work the next day. The result of these scenes in court, of course, is that the medical evidence is more or less ignored and the judge and jury form their own opinion on other grounds. The labour and cost of collecting the so called expert evidence are wasted truth is not furthered, and an honourable profession is thrown into contempt.

Now what is the reason for this lamentable position in which men of at least average honour and intellect find themselves? The answer is that it arises from the predisposition and temperament with which each approaches the case. It is an obvious fact that it is not the intellectual powers which mainly decide what view a man will take of most problems, at least of those other than mathematical. Whither our guesses at truth will lead us depends on the temperament. The same facts were at the disposal of Cardinal Newman, Mr. Gladstone, and Herbert Spencer, and perhaps their intellectual powers were comparable. Yet the same facts led to three different conclusions in theology. The same anatomical and geological data led Huxley and Owen to flatly opposed views as to the evolution of man, and a common field of political observation does not make Mr. Arthur Balfour agree with Mr. John Morley. There must be some radical difference in temperament which leads them to draw such different conclusions from the same facts. What influences the temperament or excites the predisposition of the medical man asked to appear as an expert witness? It is his belief that he is in honour bound to do his best for the side that pays him. He looks upon himself as an advocate, bound to work up the case from the one point of view, leaving the opposition to find the weak spots in his armour. He imagines himself a medical lawyer whose duty it is to defend his client. This is undoubtedly a code of honour, but it is, I hold, a wrong code and one which has led to disastrous results. I venture to assert exactly the opposite, that the medical man, when consulted as a scientific witness, is not concerned as to which side wins, but has merely to testify to the exact facts and the conclusions logically deducible from them with as near an approach to mathematical accuracy and clearness as he can and entirely without regard to the success or failure of the party which pays him. The scientific expert is not called in to judge the case or to exhibit human sympathy or the reverse; he should be merely an instrument of precision to exhibit the true state of affairs to judge and jury. He is the microscope which reveals things invisible to the common eye, the balance of delicate poise; but if the lenses distort or if the weights be untrue he is worse than useless to the common sense. As the medium of truth he must sink his personality; of predisposition there should be none; his temperament must not come into court.

[1] A paper read before the Nottingham Medico-Chirurgical Society on Feb. 15th, 1905.

Yet how can this be when Drs. A, B, and C are asked to report for one side knowing that Drs. D, E, and F are doing so for the other and all their *amour propre* is excited to make a valiant effort to minimise the value of the facts and ridicule the conclusions of their opposing colleagues? The climax of absurdity is reached when each side permanently retains a medical man to fight its claims. The medical men in such a position are advocates, able and honourable advocates it is true, but cannot be looked upon as expert witnesses. That each side should have such expert advice is fair enough but it should not come into court as an expounder to the laity of scientific truth.

The present methods of adjudicating these cases are in short fundamentally rotten and stand self-condemned by the pitiable scenes that occur in our law courts and the general travesty of justice to which they lead. The system of Crown referees was intended to avoid this state of things, but for some mysterious reason judges have ignored their existence. Either their activity must be called into being or in some other way independent technical exponents of truth must be found and the scientific expert witness no longer be mixed up with the medical advocate.

Looking Back.

FROM

THE LANCET, *SATURDAY*, March 3, 1827.

TO THE

RIGHT HON. ROBERT PEEL, &c., &c.

(From THE TIMES *of February 26.)*

SIR,—The high ministerial station which you deservedly occupy, must often expose you to various kinds of applications respecting the condition and management of our national institutions, and also to personal or partial interference about their several real or pretended interests. In all such instances you must perceive the fairness and the ultimate advantage of preferring direct information from the respective constituted authorities, of requiring advice from rival institutions upon doubtful measures, and of regarding with jealousy the private communications of interested individuals. It is, however, reported that you are, at this time, beset upon the subject of introducing an ordeal for licensing man-midwives, by certain members of the London College of Surgeons, and that you are urged by popular men (whose wisdom and disinterestedness may be questioned) to favour their scheme with your powerful influence.

As the prevalent vice of avarice may have some share in this professional movement, it is fit that you and the public should be acquainted with the probably concealed effects of granting the solicited privileges; and for the reasons already given, I am induced to address you through the press.

Man-midwifery has only been practised in England during the last hundred years, and it was introduced as a French fashion. From the beginning it has been strongly opposed on the score of its indecency, by many distinguished and scientific medical men, and also, because the birth of mankind appeared to them to be a purely natural process, so wisely ordered, that it very rarely demands any other aid than experienced mothers can safely give. Even so late as the time of the illustrious mother of his present Majesty, that exemplary Queen was personally attended by good Mrs. Draper, without difficulties or misadventures; whereas the contrary result, under male management, in the fatal affair of the Princess Charlotte and her infant, will be long remembered.

If it should be asked why so many professional men addict themselves to a degrading vocation, it may be answered, that the practice of man-midwifery leads to unlimited power in every family, and thence to lucrative ends. Women, naturally timid, and ignorant of their own structure, are peculiarly exposed, during the most important office of their existence, to the persuasions or menaces of more knowing persons, and they are thence easily made to believe, that the natural and wholesome delays and pains of child-bed are within the control of medical or surgical art,—an assumption which is too generally acted upon, and with unvarying evil consequences; because it is a violation of the ways of nature. Man-midwives have continually alleged, that ignorant women practitioners commit many fatal mistakes, and now they present similar objections against unlicensed men. If, as I believe, the safeguards of child-birth are amply provided by nature, and that not one instance in a thousand calls for any other help beyond what any moderately experienced woman can safely give, why are we to license adventurers, who may seek notoriety by desperate acts, often involving manslaughter—operative acts, the moral propriety of which is very doubtful, and the time and the methods for performing them, still subjects for rancorous disputes? But the present affair is not respecting the utility of man-midwives, but the impropriety of empowering any special corporate medical body to coerce the rest; to further impede female-midwives in a becoming duty, and to deprive delicate women of that great resource of self-respect. Already the prevalence of man-midwifery has driven country surgeons and apothecaries to adopt this humiliating office, and the number of women practitioners has been thence so reduced, that paupers are in many places delivered by apprentice boys under 16 years of age. The Royal College of Physicians in London, who rank the highest for learning and for decorum, have lately rescinded their admission of licentiates in midwifery, whether from considering the practice as derogatory to a physician, or as an overweening privilege toward females and children, is not avowed; but it seems that no London physician educated at Oxford or Cambridge, has yet condescended to be a man-midwife. The Royal Colleges of Surgeons in London, in Dublin, and in Edinburgh, have likewise hitherto renounced every connexion with man-midwifery.

The teachers of midwifery are indiscriminately doctors and surgeons, but at this moment the majority of lecturers and superintendents of lying-in charities are physicians, while a multitude of legally appointed sub-physicians (styled apothecaries) are equally entitled, with the other classes of the faculty, to establish tribunals for examining and licensing candidates for man-midwifery, if they could deem it expedient. Finally, it may be noted, that the different classes of man-midwives have never yet agreed among themselves to adopt a common ordeal for certifying the qualifications of their calling, and you may be assured, Sir, that many worldly interests will rage against the establishment of any monopoly of this kind in any single institution, because man-midwifery is the covert way to medical fortunes. If, however, the greediness of a few individuals should expose this subject to free discussion, and the judgment of married men and modest women should be copiously awakened, perhaps the general custom of employing women may be again resorted to, and their competent instruction publicly enforced.

It is said, that our changeable neighbours at Paris are already tired of their fashionable freak, and when our countrywomen reflect, that not one in ten thousand of their sex throughout the globe allow of the presence of a man during the rites of child-bed, they may acquire courage, and unite their efforts to replace the routine of midwifery among themselves. I will not offend you and the public by any observations upon the outrageous stories collected on this occasion, to prove the violent and fatal injuries committed by unlicensed man-midwives, because I think the privilege sought for would increase those evils.

With the greatest respect,
I have the honour to be,
Your very obedient servant,
ANTHONY CARLISLE.

Langham-place, Feb. 19.

NOTE:—The above letter, which became notorious, was printed on page 701 of THE LANCET. The following appears at the bottom of page 712:

"THE Letter of Sir ANTHONY CARLISLE, at page 701, is a curiosity, and just the testaceous sort of thing one would expect from the pen of an OYSTER."[1]

[1] Sir Anthony Carlisle was dubbed "Oyster" because during the delivery of his Hunterian Oration before the Royal College of Surgeons on Feb. 14th, 1826, he produced inappropriately a large oyster and dissected it and descanted on it with the "most obstinate and tedious minuteness." "Sir A's OYSTER so completely *sickened* his auditory, that their frequent ejections of it, by *coughing* and *gulping*, hurried him to an abrupt conclusion." (Vide THE LANCET, Feb. 18th, 1826.)

A CENTENARIAN.—At a recent meeting of the Long Ashton (Somerset) board of guardians it was decided to grant extra relief to Mrs. Honor Coleman who attained the age of 104 years on Feb. 22nd.

MEDICINE, ITS PRACTICE AND ITS PUBLIC RELATIONS.

CHAPTER III.[1]

THE FIGURES OF THE MEDICAL PROFESSION AND THE CHANCES OF SUCCESS.

The Ratio of Medical Men to Population.—The Figures in Austria-Hungary, France, and Germany.—The Average of Success.—Sir James Paget's Investigation.—A Supplementary Investigation.—The Fallacy of Figures.

THE numerical ratio of employed to employer is one of the first things to look at in an attempt to estimate the material or financial position of the members of any section of the community. There is particular reason to do this in respect of the medical profession because it is alleged that many of the grievances which medical men can show to exist in their professional life are due to the down-grade tendencies of competition. Of course, the services of an overcrowded profession will be obtained more cheaply by the public, but it will not do to assume without inquiry that the medical profession is overcrowded, if only because a *general* excuse for *many and particular* ills should never be accepted without rigorous test. If it once becomes a matter of assumption that unprofessional practices must occur, that low remuneration must be received, and that humiliating contracts must be entered into because of the demoralising influence of overcrowding, the desire to remedy abuses will be killed by a fatalistic tendency to put up with a condition of things which is supposed to be due to some unalterable law of supply and demand. The figures do not bear out the statement so frequently made that the profession of medicine in this country is grossly overcrowded.

The first of the tables which follows gives a numerical analysis of the members of the medical profession taken from back numbers of the Medical Directory. I have given the figures for the last six years consecutively and have then added those for 1861, 1871, 1881, and 1891, so that the respective figures in these columns may be compared with the population of the United Kingdom according to the decennial census for those years.

The second table gives the population of England (including Wales), Ireland, Scotland, and the Islands for the years 1861, 1871, 1881, 1891, and 1901.

Taking as a guide the decennial increase of England and Scotland and the decennial decrease of Ireland it is probable that for the present purposes 42,750,000 represents sufficiently nearly the population of Great Britain and Ireland. We therefore see that in 1861 there was one registered medical man to 1271 inhabitants; in 1871 there was one medical man to 1370 inhabitants; in 1881 there was one medical man to 1558 inhabitants—the population having taken an upward leap; in 1891 there was one medical man to 1283 inhabitants; in 1901 there was one medical man to 1144 inhabitants; and in 1904 there was one medical man to 1133 inhabitants. These figures must further be corrected to the advantage of the medical man by subtracting the registered practitioners resident abroad and a certain number of the medical men holding commissions in one of the three services. By making these necessary allowances it becomes clear that the ratio of medical men to the public to-day is really much the same as it was in 1861 or 1871. May it not be taken for granted that a numerical ratio which has held good, with but one considerable variation, for 40 years or more has something inherently right about it?

That the members of the medical profession in England (including Wales), Scotland, and Ireland are divided in such a way as to create a plethora in one place and a dearth in another is a different matter altogether, though here we are at an advantage over other countries. In Austria-Hungary, for example, where 18,000 medical men minister to the needs of 47,000,000 people, it will be seen that the ratio of medical men to population is only half

TABLE I.[2]

Year.	1861.	1871.	1881.	1891.	1899.	1900.	1901.	1902.	1903.	1904.
London list	—	—	3,994	5,095	6,117	6,102	6,211	6,292	6,309	6,328
Provincial list, England	18,642*	18,884*	11,319	13,926	15,497	15,794	16,095	16,232	16,422	16,553
List for Wales	—	—	‡	‡	1,100	1,127	1,165	1,183	1,186	1,207
List for Scotland ...	1,870	1,780	2,003	2,739	3,304	3,462	3,569	3,645	3,680	3,696
List for Ireland	2,357	2,420	2,416	2,489	2,551	2,559	2,575	2,587	2,641	2,629
Registered practitioners resident abroad...	§	§	2,252	2,795	3,795	3,875	3,910	3,952	4,117	4,292
Naval, Military, and Indian Medical Services	§	§	2,445	2,440	2,528	2,705	2,79.	2,886	2,917	3,016
Too late list additional names...	§	§	43	40	12	27	31	11	19	9
Total	22,869	23,084	22,472	29,524	34,994 (increase 91)	35,651 (increase 534)	36,354 (increase 703)	36,788 (increase 434)	37,291 (increase 503)	37,730 (increase 439)

* The figures for England and Wales are given *en bloc*.
‡ The Medical Directory gave no separate figures for Wales in these years.
§ Details not forthcoming.

TABLE II.[2]

Years.	England.	Ireland.	Scotland.	Islands.	Total.
1861	20,066,224	5,798,967	3,062,294	143,447	29,070,932
1871	22,712,266	5,412,377	3,360,018	144,638	31,629,299
1881	25,974,439	5,174,836	3,735,573	141,260	35,026,108
1891	29,002,525	4,704,750	4,025,647	147,842	37,880,764
1901	32,527,843	4,456,775	4,472,103	150,370	41,609,091

[1] Chapters I. and II. were published in THE LANCET of Feb. 18th (p. 447) and Feb. 25th (p. 517), 1905, respectively.
[2] The proprietors of the Medical Directory, Messrs. J. and A. Churchill, kindly furnished the information for compiling these tables.

that which obtains in Great Britain and Ireland. But, as a matter of fact, there are many districts in the provinces of the dual empire with no medical men at all, all the practitioners being crowded into the cities and watering places. The 18,000 medical men do not serve a population of more than 25,000,000 or so and the real proportion does not differ much from that found among ourselves. In France the figures are a little different, the same number of medical men approximately (18,871) having the care of a population of 39,000,000. But in France also there are vast tracts of country where medical men are very few, though homogeneity of race and language prevents the complete isolation of districts which prevails in Austria-Hungary. In Germany there is one medical man to 1934 of the population, the great towns being especially over-provided with physicians and surgeons. In Berlin the proportion of practitioners to population is 1 to 766, in Munich it is 1 to 608. But in some of the outlying provinces there are no medical men at all. Take the province of Gumbinnen, for instance, a district in Eastern Prussia, near the Russian frontier. Here the proportion of medical men to population is 1 in 4100. It is such inequalities in distribution that produce the problem of overcrowding in certain places, and in England and Scotland and Ireland these inequalities are less marked than in Germany, France, and Austria. Of course, our capital towns, our best known watering places, and the sites of our medical schools attract many as family practitioners, as consultants, or as teachers, but the general social and geographical conditions with us conduce to a more or less even distribution of medical service. The contention that the serious overcrowding of the medical profession makes it impossible to remove many of the grievances which are certainly present in the medical life cannot be sustained. Here and there the stress of competition tells, and tells forcibly, but on the whole it has been exaggerated.

We come now to another consideration showing the medical profession to be not such an arduous and wretched life as it has been described sometimes by doleful writers. In 1869 Sir James Paget undertook, with the assistance of a colleague at St. Bartholomew's Hospital, an investigation into the chances of the medical student as shown by his subsequent career. The investigation resulted in the publication of figures showing that a medical student had at least as good a chance of worldly success as a lad embarking in any other career. Sir James Paget followed up the lives of 1000 medical students who had joined the medical school of St. Bartholomew's Hospital with the following result:[1] 23 met with distinguished success, 66 met with considerable success, 507 met with fair success, 124 met with very limited success, 56 failed, 96 discontinued medical studies while in pupilage, 41 died during pupilage, and 87 died within 12 years of commencing practice.

Sir James Paget defined "distinguished success" as the attainment within 15 years of qualification to a leading position in practice in great cities, to a scientific professorship at a university, to a place on the staff of a large hospital, or to the tenure of some important public office. He ascribed "considerable success" to those who gained high positions in the services, obtained good provincial and country practices, and enjoyed more than ordinary esteem and influence in society. "Fair success" he defined as being in the possession of a practice sufficiently large to maintain a professional man in adequate style, or the tenure of an advancing position in the naval, military, Indian, or colonial services. "Very limited success" he assigned to those who never attained to moderately good practice, but who were able just to maintain themselves by their work either as principals or as assistants. Of the 56 who failed 15 could not pass their examinations, five were convicted of misconduct, ten were dissipated both as students and afterwards, and ten had bad health. The remainder were known to have come to grief without any particular reason being assigned for their misfortune. It will be seen that out of the 1000 students 41 died during pupilage and must be left out of count. Again, the 96 who discontinued their medical studies while in pupilage can hardly be brought into calculation when we are considering the chances of making a livelihood out of the practice of medicine. They cannot be said to have failed in a medical career as they never attained to professional rank. The fact that nearly 10 per cent. of the 1000 students left the profession during their studies is not without significance, as it would seem to imply that the medical profession was not one to be undertaken lightly even in days when examinations were comparatively simple and infrequent, but this is a different matter altogether. A parent when sending his son into the medical profession ought to know that there is a chance of that son never obtaining any qualifications. But this should not be mixed up in his mind with apprehensions as to the future, after qualifications have been obtained. The 41 who died during pupilage, and the 87 who died before they had been in practice 12 years were also debarred by sad fate from obtaining any position in their profession, and they can be left out of calculation for practical purposes. We have then 776 students to consider who actually reached practice, and of these 507, or about 66 per cent., attained to fair success. These are the figures that we must look at when we try to frame our opinion as to the chances that a boy has of becoming a useful, happy, and responsible citizen if he elects a medical career.

The figures that signify success above the average or total want of it are not without their lessons, the number and magnitude of the prizes to be attained being an inducement to join the profession, exactly as the risks of failing utterly at the beginning form drawbacks to a start in the race. The early wastage is a matter of grave importance both to parents and to aspirants to the medical profession and there is every reason to believe that it has increased of late owing to the multiplicity of examinations. Again, the dearth of lucrative appointments and the comparatively small pecuniary gains that accompany distinguished success are matters that must not be disregarded. The successful medical man may attain to a high position and a large fortune, but he does so very rarely, and many men who conform to Sir James Paget's definition of distinguished success live and die without popular favour, their names being unknown to the majority of their fellows, their incomes being small, and their public influence negligible. It stands to reason that a profession where so many of the prizes resemble blanks will not be selected either for themselves or for their children by those who have a keen eye to the material opportunities of life. But if the young medical man sees no high position within his possible grasp comparable to that of the judge or the bishop, if he has not the golden expectations of the man of affairs, still he may have visions of scientific fame, altruistic dreams of serving his generation, and generations to come, immortally well, and such a man would not exchange his hopes for the chances held out by other callings. Alas, that his hopes must, in the nature of things, be so seldom realised, but distinguished success, as gauged by pecuniary standards, can visit but few of the followers of medicine. The owners of oil, the operators in wheat, the directors of fleets and railways may work their monopolies against the public but any advance in medicine is at once placed freely at the public disposal.

But although the money rewards in the medical profession are small, and although the public offices filled by medical men do not appear important to those ambitious for popular

[1] St. Bartholomew's Hospital Reports, vol. v., 1869.

authority, the very significant fact appears from Sir James Paget's figures that 66 per cent. of medical men make a fair success in England, Scotland, and Ireland out of the practice of their profession. This seems at once to place the medical profession quite high as a stable means of livelihood. The barrister, the clergyman, the architect, and nowadays the solicitor cannot claim the same for their callings. If an investigation on the lines suggested by Sir James Paget were undertaken into the careers of 1000 divinity or law students, it is certain that no such high average of comparative success could be shown. As, however, nearly a working lifetime has elapsed since Sir James Paget's research into the careers of a group of his numerous pupils at St. Bartholomew's Hospital was made, it might be thought that with the lapse of time and the alteration of conditions the figures would no longer hold good. Bearing this in mind permission was obtained from the dean of one of the best known English hospitals to make a brief investigation into the careers of a group of students who had been entered for education at the medical school of that hospital.

The year 1879 was chosen and what happened to the first 250 students who entered after Oct. 1st at that institution was ascertained superficially. The date was selected because the writer joined the school a little later and was able from personal knowledge to remember facts and circumstances in the lives of a large proportion of the men under consideration, some having been his teachers and some his comrades, while, where personal acquaintance failed, it was easy to find a friend who could supply the gaps in the information. Of the 250 students 187 qualified and 63 did not qualify. Of the 63 who did not qualify as medical men two obtained places in the dental register without diplomas and are doing well and two died as students; one is decently successful at the bar, one became a veterinary surgeon and enjoys a high reputation in that profession, one accepted a purely scientific post under Government and is steadily rising in his department, one became an artist, three went on to the stage with no success, two enlisted in the army and both obtained commissions, and one became proprietor of a boarding house. Four of them who gave up the struggle were men of private means to whom the practice of a profession was not necessary as a livelihood. Of the remaining 45, 15 of them never showed the least aptitude for medicine, and among these are classed five or six lads who lived mainly for the sensual pleasures of a life in a great city.

Of the 187 students who qualified nine may be said to have met with distinguished success as defined by Sir James Paget, five of them secured after more or less waiting positions on the medical or surgical staff of their own hospital, and two became teachers at the hospital. Two others are on the staff of large general hospitals in the provinces. 45 have met with considerable success in practice. They hold good appointments, have earned a local position, and are respected and prosperous citizens. 25 hold commissions in the services, 19 in the army and six in the navy. Of these, two have distinguished themselves and have been decorated, one having become head of an important department. Of 56 men in general practice in England, including five who practise dentistry, I have been able to learn that they are living by medical practice in a manner compatible with a professional position; out of nine who are abroad two have been distinctly successful. Five men who obtained qualifications left the medical profession, of whom one is a journalist, one is an actor, one has also been on the stage, and two are men of private means. I know of only six men who came distinctly to grief, of whom two went to prison. 23 men died before they had been qualified 12 years and must be disregarded in making any estimate as to the chance of success by the practice of medicine. Of the rest, about 12 per cent. of the total, I have been unable to learn anything, though their position on the Medical Register would imply that they are still in practice.

The following are the figures which can be compared with Sir James Paget's figures: nine have met with distinguished success; 45 have met with considerable success; 25 have met with fair success in the services (two of these might be included in a higher class); 46 have also met with fair success in practice; five left the profession after qualification; six discontinued medical study as pupils; two died during pupilage; 23 died within 12 years of commencing practice; and six failed entirely. Liberality has been shown in awarding places in the higher classes, but if we add the "considerable" and "fair" successes together we get by the combination a section of 116 men out of 187. That is to say that the figures, like Sir James Paget's figures, though with much less certainty because of their incompleteness and the smaller range of the investigation, go to show that 66 per cent. of qualified medical men from one metropolitan medical school have reason to be satisfied with their professional careers.

Too much stress must not be laid upon the meaning of any of the foregoing figures. That figures, particularly if large deductions are attempted from small data, can be made to prove most things is illustrated in many controversies and it is safer to claim proof for as little as possible through their agency. But the figures can fairly be used as replies to two vague but common assertions: (1) that the medical profession is overcrowded; and (2) that in following the medical life the game is not worth the candle. These two statements have been made so often that they are beginning to receive unquestioned acceptance. As a matter of fact, the medical profession in England, Scotland, and Ireland is not overcrowded so much as badly distributed. There are services where medical men are sorely needed and where they would be found if the conditions were fair; there are large districts where medical work is waiting to be done until proper arrangements have been made by the State for doing it. When the administration of the Poor-law and the sanitary service in the three countries is considered, as well as the warrants of the naval and military services, it will be seen that certain necessary measures of reform would at once create a demand for medical officers. The employment is ready, but as yet no proper provision exists for the employed. This is not the same thing as saying that the medical profession is overcrowded.

Again, the percentage of medical men who attain a good and stable position through professional practice disproves the view that the medical profession as a whole is wrongly paid. But the figures must not be taken to show that there are no grave professional hardships. In both cases they refer to students at first-class London hospitals, students of the class who enter the profession with fine introductions and whose natural sphere of practice presents the maximum of opportunities. It would be possible by selecting students of other schools to obtain somewhat different results, though not results that would contradict the general inference that by comparison with many other callings the medical profession promises much.

(To be continued.)

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 76 of the largest English towns 7826 births and 4704 deaths were registered during the week ending Feb. 25th. The annual rate of mortality in these towns, which had been 18·0, 17·4, and 17·3 per 1000 in the three preceding weeks, further declined to 15·7 per 1000 last week. In London the death-rate was 16·0 per 1000, while it averaged 15·6 per 1000 in the 75 other large towns. The lowest death-rates in these

towns were 3·7 in Hornsey, 8·2 in King's Norton, 8·3 in Wallasey, 8·5 in Rochdale, 9·3 in Handsworth (Staffs.), 9·9 in Walthamstow, and 10·1 in East Ham; the highest rates were 21·0 in Hanley, 21·4 in Warrington and in Bury, 22·8 in Ipswich, 24·7 in Wigan, 26·3 in Portsmouth, and 29·8 in Stockton-on-Tees. The 4704 deaths in these towns last week included 365 which were referred to the principal infectious diseases, against 368, 401, and 410 in the three preceding weeks; of these 365 deaths, 110 resulted from measles, 102 from whooping-cough, 61 from diphtheria, 38 from scarlet fever, 27 from "fever" (principally enteric), and 27 from diarrhœa, but not any from small-pox. No death from any of the principal infectious diseases was registered last week in Hornsey, Bournemouth, Norwich, Handsworth (Staffs.), King's Norton, Smethwick, Coventry, Wallasey, Warrington, Barrow-in-Furness, York, or Swansea; while they caused the highest death-rates in East Ham, Portsmouth, Southampton, West Bromwich, Nottingham, Middlesbrough, West Hartlepool, and South Shields. The greatest proportional mortality from measles occurred in East Ham, Portsmouth, Southampton, West Bromwich, Leicester, Nottingham, Stockport, Middlesbrough, West Hartlepool, South Shields, and Cardiff; and from whooping-cough in Hastings, Hanley, Nottingham, Preston, and Hull. The mortality from each of the other principal infectious diseases showed no marked excess in any of the large towns. No death from small-pox was registered either in London or in any of the 75 other large towns. The number of small-pox patients under treatment in the Metropolitan Asylums Hospitals, which had been 13, nine, and eight on the three preceding Saturdays, had increased again to 15 on Saturday last, Feb. 25th; seven new cases were admitted during the week, against one, one, and three in the three preceding weeks. The number of scarlet fever cases in these hospitals and in the London Fever Hospital at the end of the week was 1987, against 2070, 2077, and 2016 at the end of the three preceding weeks; 224 new cases were admitted during the week, against 229, 260, and 241 in the three preceding weeks. The deaths in London referred to pneumonia and diseases of the respiratory organs, which had been 444, 400, and 378 in the three preceding weeks, further declined to 335 last week, but were 13 above the number in the corresponding period of last year. The causes of 62, or 1·3 per cent., of the deaths in the 76 towns last week were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in West Ham, Bristol, Nottingham, Salford, Bradford, Leeds, and in 44 other smaller towns; the largest proportions of uncertified deaths were registered in Ipswich, Birmingham, Grimsby, Liverpool, Warrington, Barrow-in-Furness, and Gateshead.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in eight of the principal Scotch towns, which had been 19·9, 18·2, and 18·9 per 1000 in the three preceding weeks, declined again to 18·3 per 1000 during the week ending Feb. 25th, but was 2·6 per 1000 in excess of the mean rate during the same period in the 76 large English towns. The rates in the eight Scotch towns ranged from 13·4 in Paisley and 15·8 in Edinburgh to 23·8 in Dundee and 25·9 in Perth. The 615 deaths in these towns included 27 which were referred to whooping-cough, 13 to diarrhœa, eight to "fever," seven to measles, six to diphtheria, and two to scarlet fever, but not any to small-pox. In all, 63 deaths resulted from these principal infectious diseases last week, against 85, 49, and 52 in the three preceding weeks. These 63 deaths were equal to an annual rate of 1·9 per 1000, which was 0·7 per 1000 above the mean rate last week from the same diseases in the 76 large English towns. The fatal cases of whooping-cough, which had been 23 and 25 in the two preceding weeks, further rose last week to 27, of which 16 occurred in Glasgow, five in Edinburgh, and two in Paisley. The fatal cases of diarrhœa, which had been 19, nine, and 13 in the three preceding weeks, were again 13 last week and included five in Glasgow and four in Aberdeen. The deaths referred to different forms of "fever," which had been four, five, and seven in the three preceding weeks, further increased last week to eight, of which four fatal cases of enteric fever occurred in Glasgow and four of typhus in Aberdeen. The deaths from measles, which had been six, seven, and four in the three preceding weeks, rose again to seven last week and included four in Glasgow and two in Edinburgh. The fatal cases of diphtheria, which had been three in each of the two preceding weeks, increased last week to six, of which three were registered in Edinburgh and two in Dundee. The two fatal cases of scarlet fever occurred in Glasgow. The deaths referred to diseases of the respiratory organs in these towns, which had been 146, 130, and 119 in the three preceding weeks, further declined last week to 116 and were 49 below the number in the corresponding period of last year. The causes of 21, or more than 3 per cent., of the deaths registered in these eight towns last week were not certified.

HEALTH OF DUBLIN

The death-rate in Dublin, which had been 24·2, 25·2, and 23·5 per 1000 in the three preceding weeks, rose again to 25·5 per 1000 during the week ending Feb. 25th. During the past four weeks the death-rate has averaged 24·6 per 1000, the rates during the same period being 17·0 in London and 18·1 in Edinburgh. The 185 deaths of persons belonging to Dublin registered during the week under notice were 14 in excess of the number in the preceding week and included five which were referred to the principal infectious diseases, against nine, seven, and eight in the three preceding weeks; of these, three resulted from measles, one from whooping-cough, and one from diarrhœa, but not any from small-pox, scarlet fever, diphtheria, or "fever." These five deaths were equal to an annual rate of 0·7 per 1000, the death-rates last week from the principal infectious diseases being 1·0 in London and 1·7 in Edinburgh. The three deaths from measles were slightly in excess of the number in the preceding week; the mortality from whooping-cough and from diarrhœa corresponded in each case with that recorded in the preceding week. The 185 deaths in Dublin last week included 43 of children under one year of age and 43 of persons aged 60 years and upwards; the deaths of infants and of elderly persons were 16 and four respectively in excess of the numbers in the preceding week. One inquest case and two deaths from violence were recorded; and 61, or nearly a third, of the deaths occurred in public institutions. The causes of 13, or more than 7 per cent., of the deaths registered in Dublin last week were not certified.

THE SERVICES

ROYAL NAVY MEDICAL SERVICE

THE undermentioned Staff Surgeons have been promoted to the rank of Fleet Surgeon in His Majesty's Fleet: Lawrence Bidwell, Edward Henry Hodnet de Courtmacsherry, Walter James Bearblock, William Hackett, Charles Geekie Matthew, Thomas Austen, and Joseph Chambers.

The following appointments are notified:—Fleet Surgeons: H. F. Iliewicz to the *Cressy* on commissioning with nucleus crew; R. Miller to Bermuda Hospital and Dockyard on reduction of establishment; G. E. Kennedy to the *Royal Oak*, on recommissioning; and C. Bradley to the *Cæsar* on commissioning. Staff Surgeons: G. Ley to the *President*, additional, to assist in the survey of stores at Yarmouth Hospital, temporary. Surgeons: H. R. Gardner to the *Cæsar* on commissioning; F. C. B. Gittings to the *Wildfire* for Sheerness Dockyard; E. S. Reid to the *Hannibal;* and D. V. Lowndes to Bermuda Hospital and Dockyard on reduction of establishments.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel G. F. Gubbin, Major A. Hosie, Major E. Eckersley, and Major C. W. H. Whitestone are appointed to the Eastern Command. Major W. W. O. Beveridge, D.S.O., from Cape Colony, is appointed to the London District for duty. Surgeon-General W. H. Macnamara, C.B., C.M.G., Principal Medical Officer, Aldershot Army Corps, proceeds on leave of absence, with permission to travel in France and Switzerland. During his absence his duties are being performed by Colonel G. W. Robinson, commanding the Depôt and Training School, Royal Army Medical Corps.

INDIAN MEDICAL SERVICE.

Lieutenant-Colonel H. K. McKay, C.I.E. (Bengal), has been appointed Inspector-General of Civil Hospitals and

Sanitary Commissioner, Burmah, vice Lieutenant-Colonel S. Little. Major C. H. Bedford is posted to the Finance Department.

ARMY REFORM.

In the debate on the Address the question of army reform was bound to occupy a prominent position and such has been the case. Mr. Arnold-Forster's scheme was severely criticised in the House of Commons but the Minister of War nevertheless defended the position he had taken up with great ability and no semblance of having any misgiving in his mind. With all the characteristic enthusiasm that he has hitherto shown in defence of his scheme he traversed with a direct negative all the assertions that had been advanced against it. The debate was nevertheless disappointing owing to its discursive nature and to the fact that it embraced too many subjects on almost all of which further and fuller information is still needed. The whole subject will be again taken up when the Army Estimates are considered and it is to be hoped that Mr. Arnold-Forster will then be able to give fuller and more satisfactory assurances than he has hitherto done—especially in regard to the position which army hygiene and our army medical system and service are to occupy in the wars of the future. Meanwhile we may refer to what the War Minister said in the course of his speech in which he very fairly pleaded for further time for the carrying out and development of his reforms. As regards the construction of barracks, which crucially affects the welfare of the soldier, he said: "We have put the business of barrack building under the supervision of an experienced civilian who has had the control of the erection of such buildings as the Rowton Houses in London and Birmingham. The experience he has had well qualifies him for devising barrack accommodation for the comfort and welfare of the soldier. The hon. Member for Ilkeston asked whether we have made any progress with the medical service. When I tell him that not only have careful observers made themselves acquainted with developments during the Russo-Japanese war, but we have at last commenced the erection of the medical college in which he is interested, I do not think there is altogether a bad record," and Mr. Arnold-Forster subsequently added that the Royal Army Medical Corps had been increased by 462 officers and 1210 men. In view of all that has taken place in the Russo-Japanese war the nation and the medical profession will look forward to the medical reforms which Mr. Arnold-Forster has to propose with anxious interest.

SOLDIERING IN SCHOOLS.

The subject of the military training of the youth of this country was recently brought forward by the Earl of Meath in the House of Lords where it gave rise to a brief but interesting discussion which led, however, to no practical result. All who took part in the debate were apparently agreed about some sort of military training being essential to secure the physical fitness of the rising generation and for developing among them a spirit of patriotism and sense of discipline and national duty. But while measures taken by the Education Department for improving voluntary drill had been attended with satisfactory results, the Earl of Donoughmore urged that there was plenty of evidence forthcoming that offers of the War Office to supply instructors on a compulsory basis would not be favourably met by the headmasters of secondary schools. In the present circumstances and as a result of their experience, the War Office was not encouraged to attempt any compulsory drilling in the schools.

PHYSIQUE IN THE ARMY.

The *Standard* of Feb. 28th states that "important appointments not previously contemplated have been made in connexion with the new organisation of army commands in respect of recruiting. The War Office have announced that a medical inspector of recruits is to be stationed at the headquarters of each command charged with the responsibility of securing recruits for the army of the requisite physique, and his duties are to extend to the militia, yeomanry, and volunteers. He is to visit the regimental depôts of the regular forces and militia, inspect the recruits, and superintend their physical training, and he is also to attend at the drill halls of volunteer corps and examine the recruits as to their stature and chest measurement, and report as to those for whom the capitation grant should be withheld. The announcement of the appointmonts for these duties have been favourably received in military circles. Lieutenant-Colonel Reid, R.A.M.C., has been appointed to the southern command."

THE WAR IN THE FAR EAST.

The recent publication of the decision of the North Sea Commission, added to the reports regarding the internal condition of Russia and the rumours about peace, has tended still further to divert public attention from what is going on at the actual seat of war in Manchuria. Summarily stated the news from there amounts to this: that the Japanese are making attacks on the mountain passes and are pressing forward and threatening the Russian extreme left which is giving way before the Japanese advance from the south-east. It is noteworthy that at the present time nearly all the military news appears to be coming from Russian sources; the Japanese do not, as a rule, report any movements until they have something decisive to declare officially. As regards the medical events of the war, on the other hand, the Russian authorities are very reticent. We know officially little or nothing of the health conditions of the Russian forces in the field, but it is certain that their losses, and especially those from disease, have been very great and in striking contrast with the highly favourable statistical results which have been recorded of General Oku's force. As far as can be gathered from independent sources the Russian forces in the field have greatly suffered from preventable causes of disease and from lack of timely foresight and supplies as well as from overcrowded hospitals arising from the overwhelming number of sick and wounded. Added to these causes the nervous depression arising from repeated defeat is also a factor which must not be forgotten. A beaten army is almost invariably a sickly one—a prey to any prevailing diseases. The weather until quite recently has been extremely cold but the Japanese state that their troops have not suffered from frost-bite.

Whilst the outrage by a Russian general on a medical man is still the subject of columns of discussion in the Russian press the *Vostotchnoe Obosrenie* publishes an order by General Nadaroff, setting forth that on the night of Nov. 24th last three medical men in Kharbin hailed a cab but the coachman would not move. The dispute brought about a crowd of people and policemen who took the medical men to the police-station where they passed the night in a dirty cell amongst a degraded assortment of fellow prisoners. No attention was paid to their request to see the officer in charge of the station or that their cards should be submitted to him. They were also struck by the police before being put into the cell. "The outrage," says the order, "is the result of the defective organisation in the local police force and notifies the dismissal of the chief officer nominally in charge of the station for not being within call. The sergeant has been sentenced to imprisonment and dismissal, the coachman has been sent away from Kharbin till the end of the war, the police who struck the medical men have been imprisoned and dismissed, and many more minor degrees of guilt in connexion with the occurrence have been visited with proportionate degrees of punishment." The order concludes with a special request to General Chorvata, who directs the Eastern Chinese railway, to make such disorderly proceedings impossible in future.

The officers of the Royal Military College, past and present, have presented as a farewell gift to Lieutenant-Colonel Alfred F. S. Clarke, R.A.M.C., on his leaving Sandhurst after 22 years' service as surgeon of the College, a silver salver with suitable inscription and an opal and diamond ring for Mrs. Clarke.

ROYAL INTEREST IN FOOTBALL.—Amidst considerable popular enthusiasm the King and the Prince of Wales were present at the United Service football match on Saturday last and remained throughout the match interested spectators. During the match Petty Officer Stirland met with an accident and was attended on the field by Mr. F. G. Lloyd who later received kind inquiries from the King and the Prince of Wales concerning the patient whose injuries were not of a serious character.

UNIVERSITY OF CAMBRIDGE.—Mr. A. W. Hill, King's College, has been appointed university lecturer in Botany.—Mr. F. F. Blackman, St. John's College, has been appointed an examiner in Elementary Biology.—Dr. Joseph Griffiths, M.A., of King's College, has been approved for the degree of Master of Surgery.—Mr. E. H. Hankin, M.A., St. John's College, bacteriologist to the North-West Provinces and Oudh, has been approved for the degree of Doctor of Science.

Correspondence.

"Audi alteram partem."

THE INDIAN MEDICAL SERVICE.

To the Editors of THE LANCET.

SIRS,—I have read with much interest the leading article in THE LANCET of Feb. 18th, p. 441, on the position of the profession in India. The position is undoubtedly a difficult one both for the Indian Medical Service and for the graduates and licentiates of the universities and colleges in India. On the one hand the Indian Medical Service finds that the conditions which led in former days to lucrative consulting practices and to opportunities for making great reputations are being considerably curtailed and threaten in time almost to disappear. Many of the civil appointments in the mofussal or country districts which at one time were moderately lucrative are not so now and even the prize appointments in Calcutta and other large towns in India, which were held by such men as Fayrer, Guyer Hunter, Moore, McLeod, Freyer, Crombie, and a long line of distinguished men, are shorn of much of their value. As years go on matters will become worse in this respect because the more thoroughly the students are taught the less need will there be to call in the services of Europeans, while the chances of large fees from wealthy patients grateful for extraordinary services rendered are now forbidden, and very unfairly, I think, by a paternal Government. It is not surprising that in such circumstances medical officers are jealous of the privileges that remain to them and the time is fast approaching when I think, if the service is to be a contented one, a higher scale of salaries will have to be provided for its officers.

On the other hand, there are the ever-increasing number of qualified men, Indian and Eurasian, coming annually into the field and who are naturally employed by their own people. But this is not sufficient for many of the more talented and ambitious. They see the doors of the higher services of Government closed to them and this produces among them bitter discontent. No graduate of the Indian universities can hope to rise in Government service unless he first comes to England and then, after having undergone a course of study in an English medical school, competes with the young Britishers who are desirous of entering the Indian Medical Service. We may imagine what this means if we reverse the arrangement and insist on English students visiting India and undergoing a course there before being permitted to enter the competitive examination for the Indian Medical Service with Indians and Eurasians in their own country. I believe the regulation, however hard it may appear to be, is nevertheless a wise one and was conceived with the highest purpose in view. It is necessary that the young medical men entering the Indian Medical Service, which is primarily a military one and only secondarily a civil service for India, shall be well acquainted with English customs and shall be familiar with western civilisation. But while holding this view it is impossible to ignore the existence of the discontent engendered by the absence of an outlet for legitimate ambitions and I feel convinced that it would be wise in every sense to find a remedy. I was fully conversant with the position of affairs when I was editor of the *Indian Medical Gazette* and it was partly to meet this aspect of the case and to provide such an outlet for distinguished native graduates and open to them an honourable and proud position in Government service I proposed in 1894 that a public health service should be formed in India. This proposal met with the hearty support of most of the prominent men of the Indian Medical Service and was received with enthusiasm by the Indian graduates. The necessity of this service in the interests of the public health of India I need not dwell upon here. It is fully set out in my address on Preventive Work in the Tropics published in THE LANCET of August 27th, 1904, p. 577, in which it is shown that until India possesses such a service she will be the prey, as she is now, to epidemics of great magnitude.

Not belonging to the Indian Medical Service but by my position in India coming into intimate relationship with its officers, many of whom I count among my friends, and at the same time being friendly with the most influential native medical men, I have had exceptional opportunities of forming an unbiased opinion on the subject in question and it is because a remedy will require to be found to ameliorate a state of things which is becoming more acute every year that I venture to recommend that the Government of India should lose no time in carrying out the scheme suggested.

I am, Sirs, yours faithfully,
W. J. SIMPSON, M.D. Aberd.

King's College, Feb. 22nd, 1905.

THE UNIVERSITY OF LONDON AND MEDICAL EDUCATION.

To the Editors of THE LANCET.

SIRS,—Dr. Fowler's letter in the *Times* of Feb. 22nd would lead his readers to think that the question of centralisation of the medical schools is unanimously approved by all London medical teachers. This is far from the case. The larger number of the teachers of the preliminary medical sciences were not placed upon the Faculty of Medicine by the University Commissioners and had no voice in the matter when the resolution in favour of centralisation was passed. They were afterwards invited to consider the method of their own abolition. Many thoughtful men among the teachers have grave doubts upon this scheme of centralisation and consider that an alternative and far simpler plan has much to recommend it—to wit, that some of the smaller and more contiguous schools should fuse with others, as they will do under the struggle for existence, while the University of London should endeavour to raise funds to support the larger and most efficient schools by grants in aid. At the same time the University should carry out its real high function of promoting research and higher education by seeking to endow research laboratories such as the physiological laboratory already established in the University by the energy of Dr. Waller and the other London physiologists. Such laboratories would complete the work of the constituent colleges, train and coördinate the teachers.

The members of the centralisation committee suggest that the falling off in number of the medical students in London is due to the inefficiency of teaching and of lack of equipment on the scientific side of the medical schools. Charges of inefficiency might with greater justice be brought against eminent consultants who, having to divide their energies between enormous private practices, hospital practice, and teaching, not infrequently fail to keep in touch with the rapid advances of medical research. The greater decrease in the number of medical students in London has, however, nothing to do with the teaching. It has resulted from the establishment of local universities, whereby students who formerly had to seek London can now live at home and carry out their education at Liverpool, Manchester, Cardiff, or Birmingham, and their parents are saved the expenses and risks of their lodging in London. No centralisation scheme will attract back these students. Great laboratories, high salaries, expensive equipments, and professors with well advertised names neither lead to more research nor to more efficient teaching. A plain room, rubber tubing, glass and wire, and the man may make a Faraday. Medical students require the individual attention and personal influence of their teachers as exerted in small classes and the *esprit de corps* of a hospital; they would not benefit by being herded into vast central lecture halls.

The medical research work published year by year from the laboratories of the London hospitals exceeds in value and amount that put forth by any of the universities of this country, and yet those in favour of centralisation constantly speak of the teachers and laboratories as inefficient. That the teachers are ill paid is true enough, but that has not prevented many men of marked ability and of scholarly tastes from enthusiastically following their science with great advantage both to their students and to the progress of medicine. To many of us it seems unwise to dissociate the preliminary sciences from the hospitals because we recognise that practical medicine is with astonishing rapidity becoming every day more and more a matter of laboratory inquiry and less of clinical experience. The biologist, physical chemist, chemist and physiologist are constantly required to aid the inquiries of the pathologist in the elucidation of disease, and it would be a great loss to hospital patients and patients at large—a loss rapidly becoming ever greater—to remove these scientific *confrères* from daily contact with the clinicians and pathologists. Not only these teachers but the students require continually to imbibe

the principles of chemical and physiological science and for the student this is especially needful when in his last years of study he applies his science to disease. I understand that in Sweden the opinion is now freely expressed that the bedside study of disease should come first and the scientific training later in the curriculum; that the empirical study of disease should excite the student to unravel by science both the cause and the cure. There is much to be said for this view.

The vastness of the London area from which medical students come precludes the possibility of one central institute from considerations of time and space. University College and King's College show every sign of intending to remain institutes for the teaching of the preliminary medical subjects, and there is much to be said for the retention of both these and those other schools which have shown by their energy and progress that they are efficient. These schools are conveniently placed north, south, east, and west, and have slowly been evolved to meet the needs of London. Let us improve and not destroy their evolution. If the friends of the medical schools and the University could raise between them enough to contribute £2000 a year to each efficient school to complete its maintenance the whole question would be solved and at a far less expense than the building and endowing of a new central institute.

I am, Sirs, yours faithfully,

LEONARD HILL, M.B. Lond., F.R.S.,

Lecturer on Physiology, London Hospital Medical College; Examiner to the University of Oxford, Royal College of Surgeons, &c.

The London Hospital Medical College, Feb. 27th, 1905.

SCHOOL GREEK IN SOME OF ITS NATIONAL ASPECTS AND THE *VIA MEDIA*.

To the Editors of THE LANCET.

SIRS,—Lay opinion is not competent to judge of the technical merits of the question now submitted to its vote at Cambridge or of the details of the school reform which seems to be unavoidable; but it can perceive sufficient proof in the uncompromising division between the experts in school and university education that this cause in which national interests are involved is not ripe for sentence but is ripe for adequate investigation. Not less significant is the unanimity with which the experts agree: (1) that the value of Greek for the highest culture is unsurpassed; (2) that the effect of the proposals now made under the names of science, which is not excluded but most welcomed at Cambridge, and of the University, the trustee of our highest ideals and the custodian of lights never to be extinguished, must be to uproot it finally out of our school teaching, to the detriment and spoliation of not the least distinguished section of our intellectual *élite;* and (3) that the excuse offered to the nation for these extremities is the failure of our present methods to cope with this difficult language without an unwarrantable waste of time. The normal inferences which arise from these admissions must speak for themselves.

Hitherto the only profession practically familiar with the workings of the mind and its mechanisms has had no voice in matters of education. If only its experience were to be utilised, could we not command sufficient ingenuity and practical sense, even without looking to the other side of the Atlantic, for a redistribution of school subjects and for a simplification of the study of classics and also of the modern languages, avoiding any gratuitous waste in teaching the latter on the least practical plan, and securing easier and better Greek? The cause of school Greek is linked with that of the reasoned study of languages which must soon take its place among the indispensables for an English university education and to which our race stands specially committed as to a first duty of empire. Philology, the most ancient and also the most modern of the sciences, is itself a higher branch of physiology. It is the soul of our present Renaissance in modern languages and literature and of that *universalism* which is the prominent feature of our age though we are served by the indispensable machinery of *specialism*. Philology now leans upon Greek quite as much as it did at the first Renaissance and the nation and science itself are therefore pledged to place the tuition of Greek as well as of the modern languages upon truly practical lines.

National interests of a different order are served by the popular demand and by the growing facilities for rapid methods of fluency in modern languages, a tardy repentance for the ruinous policy of preferring always the easiest task under the motto "This is a free country." The revival of that policy *ad usum scholarum* would be an anachronism. The safeguarding of the highest educational standards is also claimed in behalf of the great profession of medicine, the interests of which are not indifferent to the State. Hitherto the least favoured, but not the least needed, it is the only profession which, drawing no subventions, contributes a large revenue in the value of the lives which it saves year by year. Its usefulness to the nation must grow in proportion to its influence and the measure of its influence must always be the degree of its culture. As its work is the highest, so should its culture be; and Greek happens to be inseparable from the highest medical education, for in medicine Greek is not a "dead" but a living language. *E pur si muove.* It lives and continues unceasingly its additions to the vocabulary of Hippocrates. Throughout the world its old words and the new are the current language of the profession, though too often their origin is hardly suspected by those who utter them or is recognised with less appreciation than a little more knowledge might inspire. This is a sufficient reason why the "high-standard" medical degree of the ancient universities should, in the interests of the State as well as of the profession, ever continue to require an undiminished literary and philological training. As to science, some *via media* should be discoverable to satisfy the aspirations of our "moderns" for Cambridge opportunities and degrees without entailing upon the *alma mater* any lapse of dignity or of trust.

In conclusion, our national advantage lies in the expansion of higher culture no less than of science. To science itself better Greek and more philology would be a positive gain. The popular cry for modern languages is the strongest argument in proof of the increasing importance of philology and therefore of Greek in the range of our higher education and is an indirect demand for their cultivation. We seem to have strayed and to have lost our compass but there are landmarks as bold as the Pyramids to help us to find safety in some middle course and to guide us towards a policy of reconstruction rather than of destruction.

I am, Sirs, yours faithfully,

WILLIAM EWART, M.D. Cantab.

The Athenæum, Feb. 21st, 1905.

THE SALE OF PATENT MEDICINES ON THE CONTINENT.

To the Editors of THE LANCET.

SIRS,—I shall feel extremely grateful if any of your readers can give me any information with regard to the regulations that are made in continental countries respecting the sale of patent or proprietary medicines. I may add that as far as regards Italy, France, and Germany I have in my possession official information. It is with regard to Russia, Norway and Sweden, and Belgium that I desire some information. I am, Sirs, yours faithfully,

T. GARRETT HORDER.

32, Windsor-place, Cardiff, Feb. 23rd, 1905.

MEDICAL TEACHING IN THE METROPOLIS.

To the Editors of THE LANCET.

SIRS,—My reasons for saying that clinical medicine is ill-taught at the London medical schools are: first, my own observation; secondly, the testimony of others, and among them one who is in a unique position to give a just and disinterested opinion on the matter; and, thirdly, the fact that students from some of the schools are wont to seek elsewhere the teaching they cannot find at their *alma mater*.

I need hardly say that my letter had reference to the London schools generally, not to any school in particular. It would be a piece of impertinence on my part to institute comparisons between individual schools, but in view of Dr. Frederick Taylor's letter, and in justice to the medical school of which he is so distinguished a member, I feel I ought to say that if clinical medicine were as well taught in all the other schools as it is at Guy's (and at least one other) my letter would not have been written. It is just because at Guy's "no assistant physician during the last 40

years has been elected to the staff who has not had experience in teaching and whose capacity to teach has not been taken into consideration as a factor in his election" that this school maintains its high level of efficiency. It is gratifying to know that the school which has produced such a brilliant array of clinicians as Bright, Addison, Gull, Wilks, Pavy, and Moxon—to mention but a few of the long list—has escaped the blight of apathy which seems to have fallen on not a few others.

Dr. Nestor Tirard thinks it probable that at some of the schools medicine is better taught than surgery. This may be so; my contention had reference not to particular schools but to the schools generally. Dr. Tirard contends that the men connected with the non-teaching hospitals in London have all had the opportunity of showing their merits and their teaching powers. In my last letter I submitted that such was not the case. Nor must it be forgotten that many of these men received their education outside the metropolis. In regard to the mystifying quotations supplied by "A Student of 'Box'" I fear I miss their application. Doubtless they contain some subtle implication but I cannot fathom it. In any case it is not easy to see what the somewhat incoherent utterances of dear old Captain Cuttle and his friend J. B. have to do with twentieth century clinical teaching in London. Much to the point are the practical suggestions of "R. C. H."

May I say, in conclusion, Sirs, that I am well aware that my letter was not of a kind likely to be acclaimed with enthusiasm by the powers that be. I shall be content if it gives food for reflection. "Those who say they have no sin deceive themselves" is no mere empty formula, but a truth pregnant with great issues, as many an individual and many a nation have learnt to their cost. Confession, at least to self if not to others, is a necessary prelude to reform. Let the fact freely and honestly be acknowledged and faced that there is room—great room—for improvement in the teaching of clinical medicine here in London and improvement will follow as a matter of course.

I am, Sirs, yours faithfully,

Wimpole-street, W., Feb. 20th, 1905. HARRY CAMPBELL.

DUODENAL ULCER.

To the Editors of THE LANCET.

SIRS,—I am glad to find from Mr. B. G. A. Moynihan's reply to my letter of Feb. 18th that we are virtually in agreement on the subject of the diagnosis and treatment of duodenal ulcers. The cases which I referred to as having been under my care were all seen by me soon after perforation had taken place and therefore were, as Mr. Moynihan admits, easy to diagnose and simple to treat. I quite agree with him that if peritonitis is present some cleansing must be practised, but even then I am inclined to do as little flushing as possible and to rely rather on one or more drainage-tubes placed low down in the abdomen. Mr. G. R. Turner, in the same issue, seems still to incline to flushing, and I presume therefore that his experience has been confined mainly to the treatment of those ulcers which have perforated some time before coming under his care. If he is advocating the flushing of cases in an early stage before peritonitis has supervened I can only say that I do not agree with him and regard the practice as quite unnecessary, not to say harmful.

I am, Sirs, yours faithfully,

Harley-street, W., Feb. 25th, 1905. W. BRUCE CLARKE.

THE GOUTY DIATHESIS.

To the Editors of THE LANCET.

SIRS,—Will you kindly allow me to make some remarks on Dr. D. Chalmers Watson's article which appeared in THE LANCET of Feb. 11th, p. 347? Carlsbad being the refuge of gouty patients I have had the opportunity of observing almost 400 cases of gout or, respectively, of uric acid diathesis and I think, therefore, that my experience ought to have some bearing on the subject.

Dr. Watson's article, however interesting it may be in itself, does not permit any conclusions to be drawn from it as far as gout is concerned. Dr. Watson fed fowls and rats —i.e., omnivorous animals—on an exclusive meat diet and observed some changes in the thyroid gland. Would he have observed the same changes if the omnivorous animals had been fed on a mixed diet—i.e., on a diet gouty people are in the habit of taking; or would he have observed the same changes had he fed carnivorous animals on an exclusive meat diet?

I am quite certain that the above questions may be replied to in the negative, and as no gouty subject, however fond he may be of meat, is living exclusively on the same Dr. Watson's experiment proves nothing as to gout. In the fairly great number of gouty cases I have had under my care I did not observe in a single case any symptoms which could have related to changes in the thyroid gland; I also found it that some very obstinate cases have never been great consumers of meat, and I had a good few patients under observation who practically abstained from eating meat.

As far as the administration of thyroid extract in gout is concerned I do not think we are entitled to avail ourselves of this drug. I have given it a fair trial in cases of obesity and have found that it is apt, even if very carefully administered, to produce very serious heart symptoms, and how careful must we be as to the heart in cases of gout? I hope to be in a position to publish a report on my cases of gout ere long, on which occasion I shall deal more extensively with the subject.

I am, Sirs, yours faithfully,

S. A. ARANY, M.D. (of Carlsbad).

Royal Societies Club, Feb. 13th, 1905.

THE INTRUSION OF THE LAYMAN INTO MEDICAL PRACTICE.

To the Editors of THE LANCET.

SIRS,—In your issue of Feb. 18th there is a note with this title quoted from the title of a letter in *Medical Electrology and Radiology* in which the writer states that a medical man after arranging with him to make a required skiagraph afterwards cancelled the appointment, stating that the patient's brother, also a medical man, had been to our firm and found that he could have the skiagraph taken for a less fee. We have inquired into the circumstances and find that the facts are these.

We were asked by a very old customer simply to take a radiograph of his sister's chest and to do it for him at a specially low fee as expense was an object and being a medical man he looked for special consideration. Naturally we met his wishes, took the radiograph, sent the result to the doctor attending the case, and heard no more about it. There was never a question or suggestion of our making a "diagnosis of a mediastinal tumour."

On a former occasion we had to state that we do not, and never did, undertake the treatment of patients by x rays except at the request, and under the direction, of the medical attendant and in almost every instance the medical attendant of the patient has been present. We undertook this department of business with the hearty concurrence, if not at the actual request, of leading members of the profession and have had their support throughout. We fully understand our position as servants of the profession, heartily endeavouring to assist in all mere mechanical and subsidiary matters and without the slightest desire to encroach on the province of the profession. As a matter of business we find that the profits of radiography are entirely insignificant, though we are aware that ridiculously groundless statements to the contrary have been confidently put forth. If members of the profession prefer to take their patients to professional brethren who practise radiography it is perfectly open to them to do so but several have told us that they object to do this and are glad to avail themselves of our arrangements. Trusting to be able to avoid all reasonable ground of complaint,

We are, Sirs, yours faithfully,

ALLEN AND HANBURYS, Ltd.

Bethnal Green, E., Feb. 25th, 1905.

THE INCIPIENT STAGE OF INSANITY.

To the Editors of THE LANCET.

SIRS,—In your issue of Feb. 25th you refer to a short essay of mine on insanity which has recently been published and take exception to some of the statements in it. First of all, you seem to object to my saying that if the signs and symptoms which indicate the approach of insanity were only generally known and the importance of their early detection recognised many persons could be prevented becoming insane. And yet I know from experience that the statement is

true. Even during the last two or three years I can call to mind at least five or six cases where an attack of insanity was undoubtedly impending—in two of the cases the patients had actually been previously sent to asylums—and yet by early and energetic treatment they were restored to mental health in a short time and continue so still. This, then, is one of the reasons for the belief that is in me—namely, my own personal experience. Far more weighty, however, than any opinion of mine is that of Dr. T. S. Clouston, the eminent alienist, who in his able and exhaustive treatise on mental diseases thus writes: "If the first signs that betoken danger to the mind's health were observed, the first symptoms of disease noticed and their true significance apprehended, every physician in practice knows that their further onset and progress could often be arrested."

Seeing that I have quoted the above in my essay I think your review is hardly just to me on this point, for surely the testimony of this eminent man with his unrivalled experience of the insane is sufficient reason for holding the belief I do, even if my own experience did not confirm it. Why even the writer of your article must, one would think, partially hold this belief himself, otherwise one can hardly see the force of his opening statement—namely, "Among the many problems connected with psychology one of the most important is the early recognition of symptoms of mental aberration." If it *is* important one reason, I suppose, is because if detected early the onset of the disease can at times be prevented.

You next seem to cast a doubt upon my assertion that insane delusions can often be successfully removed and complain that I do not give examples and explain the *modus operandi*. Seeing that the essay does not profess to deal with the treatment at all but only with the signs and symptoms of the malady I can hardly be blamed for not including these matters, but in another essay which I have written, and which will be published shortly, I have not only related many successful instances of the kind indicated but have described minutely the exact method of operation. As this second essay will so soon follow the other I think it hardly worth while to go into the matter now, but as the writer of your article seems curious on the point I may say at once that nearly all the methods he mentions are pressed into service, even "argument, entreaty, and cajolery" not being despised when likely to be of the least use in saving a fellow-being from a malady often worse than death itself—namely, insanity.

As to the last complaint—namely, that persons suffering from hallucinations are not usually considered insane—I can say that all the books on insanity I have read and all the medical superintendents of asylums to whom I have spoken on the subject have always held this view and I can call to mind more than one occasion when I have been politely hinted at as eccentric for holding the contrary opinion. If, therefore, this is not the view of alienists generally I should like to know and should naturally be pleased at the admission. As, however, I have had several very complimentary communications concerning my essay from eminent specialists and others—one of them admittedly the leading alienist in the kingdom—and not one of them has thought it necessary to add a word of criticism, it is strange that these men should have allowed all my statements to pass unchallenged and the writer of your review be the first to discover their wholesale fallaciousness.

I am, Sirs, yours faithfully,

Liverpool, Feb. 26th, 1905. C. WILLIAMS.

COFFEE AND SEWAGE.

To the Editors of THE LANCET.

SIRS,—It is unnecessary to labour the "Coffee and Sewage" question, but I must object to one remark in Dr. R. K. Brown's letter in your issue of Feb. 25th. I gave all my evidence in degrees of the Centigrade thermometer at the request of the magistrate. The bottles containing the coffee, roasted at different temperatures, were distinctly labelled in both scales; they were handed about the court and were in the hands of the sanitary officials. I gave a careful and somewhat long account of the temperatures reached and the changes accompanying each, all in Centigrade degrees. I could not know that the officials were under the impression that 300° to 400° Centigrade was reached by the coffee during roasting. In the Fahrenheit scale these become 572° to 752°. I know of no organised vegetable body, such as a coffee berry is, that could be heated to such temperatures, the mean of which is above the melting point of lead and the higher above that of zinc, without destruction.

Coffee is heated to roast not to carbonise it.

I am, Sirs, yours faithfully,

Great Tower-street, E.C., Feb. 28th, 1905. R. J. FRISWELL.

THE QUEEN'S JUBILEE HOSPITAL AND THE MEDICAL STAFF.

To the Editors of THE LANCET.

SIRS,—Referring to certain reports relating to this hospital which have appeared in your paper, I am desired by the board of management to inform you that from the numerous applications received the following gentlemen have been selected to fill the vacancies on the medical staff: George Herschell, M.D. Lond.; George W. F. MacNaughton, M.D., M.R.C.P.; E. Canny Ryall, F.R.C.S.; F. W. Forbes-Ross, F.R.C.S. Lond.; J. Hutchinson Swanton, M.A., M.D., M.R.C.P.; William Lloyd, F.R.C.S.; A. Gordon Wilson, M.D. Lond., F.R.C.S. Eng.; J. H. Pope, M.D., F.R.C.S.; A. H. Payan Dawnay, M.R.C.S., L.R.C.P.

I am asked to say that all these gentlemen have accepted their appointments with a full knowledge of the recent facts connected with the hospital.

I am, Sirs, your obedient servant,

G. R. EVERITT, Chairman.

Queen's Jubilee Hospital, S.W., March 1st, 1905.

THE CLERKSHIP OF ST. BARTHOLOMEW'S HOSPITAL.

To the Editors of THE LANCET.

SIRS,—I find there is a widespread rumour to the effect that I was a candidate for the clerkship of St. Bartholomew's Hospital. As the report has been circulated with very circumstantial details I ask the hospitality of your columns to enable me to deny the report. I attach a letter from Mr. W. H. Cross confirming my denial.

I am, Sirs, yours faithfully,

St. Thomas's Hospital, Feb. 28th, 1905. SYDNEY PHILLIPS.

*** Mr. Phillips incloses a letter from Mr. W. H. Cross who says: "No application from you to be appointed my successor was received here nor, so far as I am aware, was your name mentioned as a probable candidate."—ED. L.

THE RATIONAL TREATMENT OF FRACTURES.

To the Editors of THE LANCET.

SIRS,—In THE LANCET of Feb. 11th, p. 350, Mr. J. Stafford Mellish describes his success in a case of fracture of the leg bones by following Dr. Wharton P. Hood's method by means of sticking plaster, rubbing, position, light loosely applied splints, and voluntary movement of the adjacent joints, the actual seat of fracture being guarded during this last process. I have carefully read Dr. Hood's brochure and while the plan given for dealing with the stiffness and pain after sprains, &c., and due to adhesions is admirable, and one which I have profited by for many years, it seems to me that the plan sketched for fractures, although abundant for the simple cases which hardly require treatment, is wanting in the very cases which give the practitioner no end of anxiety, with possibly loss of fee and an appearance in the law-courts. Dr. Hood apparently takes Dame Nature for his guide. But what are the results where Nature's simple plan obtains, as among birds and quadrupeds? While after a time, in spite of muscular movement, a fracture in such animals may be made good, there is much overlapping with consequent shortening and deformity, effacement of the projection taking years to effect. The same may be seen in neglected or fractures difficult to deal with in man. In Dr. Hood's brochure, "The Treatment of Injuries," I can find no reference as to how to deal with the really troublesome cases where there is much overlapping, as in oblique fractures of the bones of the lower extremity (thigh and leg), or where after "reduction" (the necessity for which and for maintenance of correct apposition of the fragments seems to be either ignored or considered of no great importance) there is return of the displacement. May I ask Mr. Mellish if in such cases he would not apply "extension,"

ipso facto implying immobilisation with consequent risk of alleged stiffness and atrophy of muscles? or whether he would allow the malposition to remain for fear of taking means that would interfere with subsequent nutrition of the muscles, in spite of deformity, possible non-union, and the risk of an action for malpraxis? I may state that the last case of severe fracture of the leg bones which I treated carefully by the rubbing method turned out an un-united fracture. Is not the generalisation of so-called rational treatment from the simple cases of clavicle, ribs, Pott's, and Colles's fractures dangerous when applied indiscriminately elsewhere and is there any other rational treatment in the troublesome cases than bone carpentry by cutting down upon, and securing together, the fragments as in Mr. W. A. Lane's plan? I am, Sirs, yours faithfully,

Feb. 20th, 1905. DUBITANS.

THE EPIDEMIC OF TYPHOID FEVER AT LINCOLN.

(FROM OUR SPECIAL SANITARY COMMISSIONER.)

Lincoln, Feb. 28th.

THE present severe epidemic of typhoid fever at Lincoln gives rise to a number of problems in spite of the apparent simplicity of its origin. Possibly these questions will never be satisfactorily answered, particularly as there is a marked tendency to avoid taking them into consideration. At Lincoln, as at Maidstone, at Hamburg, and many other places, the word "water" is pronounced with solemnity and thereupon it is thought that the question is settled and that nothing more remains to be done. But "water" does not account for the whole situation. Surely if it be acknowledged that the water-supply was contaminated this is but the beginning of the problem. If it sufficed for the water to be contaminated then everyone who drank the water would have the fever and it would prevail in all the streets and districts where it is drunk. Such is not the case and there is as much or more to be learnt by studying the quarters and the class of persons who have escaped as of those who have been stricken down. To stop investigating when once it is proved the water is contaminated is to stop at the very threshold of the problem and to pass unnoticed what may prove the most interesting and, so far as future progress is concerned, the most fruitful indications. Why is it, for instance, that the poorest streets, courts, or alleys of Lincoln have been almost entirely spared? Why did the first cases occur in high-class houses situated on elevated ground and where the domestic drains, subsequently examined, have been found in perfect order?

There are slums in the lowest lying ground, so low, indeed, that they are subject to periodical flooding by the water of the river Witham, and this is the contaminated water. It enters the basements of some of these houses nearly every year. It leaves slimy deposits on the walls of the houses. This is the condemned water in all its foulness, more foul than at the intake for the drinking water-supply and absolutely unfiltered. This dirty water soaks into the walls, it saturates the subsoil, the streets, and the flooring of the houses. The inhabitants are very poor. It is a slum and the poor live and sleep in houses rendered damp by the contaminated and unfiltered water. They cannot touch the walls or floor of their homes without the risk of contaminating their fingers. Their boots are for a great part of the year caked with the mud made by this water. Is it imagined that they wash their hands each time they touch their boots or anything else that is moistened by the water of the much-condemned river Witham? If it be argued that such contact, though very frequent, does not suffice to convey the disease to these people, it must be borne in mind that these tramps, beggars, and hawkers also drank the town water-supply and yet escaped. Further, it may be urged that the water which they drank was more dangerous than usual because they must have taken it from water-pipes near a dead head. That is to say, they live near the end of the pipe where the water can flow no further and, of course, the nearer the end of the pipe the more stagnant the water and therefore the more likely is it to make deposits and to become foul. Consequently these people perhaps ran a greater risk of being contaminated by drinking the town water and they had the supplementary risk of being injuriously affected by the river itself when it flooded their houses. Yet these are the very persons who have suffered the least. Therefore it does not suffice to say that the water was polluted, though I have mentioned but one incident out of many tending to show that other circumstances as well as the water-supply have to be taken into consideration. Besides, is this the first time that the town supply has been polluted? Who would venture to make any such affirmation?

It is said that certainly the river Witham has always been subject to pollution but that no harm has resulted because the water was filtered. On this occasion, however, during the exceptionally cold weather which occurred in November and December, the inhabitants, fearing that their water-pipes would freeze, kept the water running all day and all night. Consequently the rate of water consumption increased about 50 per cent. To meet this increased demand, instead of allowing only 450 gallons to pass per square yard of filtering area, some 750 gallons ran through. Such rapid filtration was not efficacious and it is said that the typhoid bacilli passed through the filters. This probably was the case, though as no examinations were made at the time it will never be known what really did occur. Subsequently samples of water have been taken both before and after filtration. These have been submitted to expert bacteriological examination. The result has not been officially communicated but it is generally understood that the bacilli of typhoid fever were found in the unfiltered water but the result of the examination of the filtered water was doubtful. There is therefore every reason to believe that the water was contaminated with the specific pathogenic germ of typhoid fever. But will anyone in Lincoln answer for it that such an occurrence has never happened before! Also, it may be asked whether the only result of the extra consumption of water due to letting the taps run during the frosty weather was the over-working of the filters. If the estimates given are correct an excess of some 900,000 gallons of water must have flowed per day into the sewers at that time. But that is not all. Such water coming directly from the taps and being unused for domestic purposes, but passing during the freezing weather by surface pipes and drains before it reached the sewer, must have been very cold water. As the sewers, on the other hand, are generally too far below the surface of the streets to be affected by the outdoor temperature they are in winter, comparatively speaking, very warm. Therefore this great and exceptional inrush of very cold water must have produced unusual atmospheric conditions within the sewers. Then, again, there is no natural outlet for the sewage. It all goes to a pumping station and when there is more sewage than the pumps can lift the sewers become water-logged. Thus we find here two different causes working simultaneously to produce such atmospheric disturbances within the sewers as would result in the forcing upwards into the houses and into the street sewer air that differed from the normal conditions in volume and in quality.

So far there have been 745 cases of typhoid fever notified within the city of Lincoln, resulting in 63 deaths. Outside the city boundaries in what might be considered suburban districts there have been 15 notifications and one death at Bracebridge and 28 notifications and one death in the Branston rural district. Other rural outlying districts have had only one or two cases and then the patients were persons who worked in Lincoln. It is urged that the outlying localities where there has been a considerable number of cases are supplied with the Lincoln water and that the other localities, where there have been very few cases, are not supplied with the Lincoln water. This is a very striking and effective argument; but is it not equally necessary to state that those outlying localities where there has been a considerable number of cases drain into the Lincoln system of sewers, and the other localities where there have been very few cases are not connected with the Lincoln sewers? In other words, the neighbouring villages which have neither the water nor the sewers of Lincoln have escaped and those which have both the sewers and the water of Lincoln have not escaped. It will be seen from the figures given that the present is a severe epidemic, for the estimated population of Lincoln is only 50,500. But there were 39 deaths from typhoid fever in 1879 and the population did not then amount to 35,000. If there should be no further deaths from the present epidemic then the epidemic of 1879 will in proportion to the population have been almost as fatal. Unfortunately, it is probable that the difference between the two epidemics will become more marked before the present

outbreak is over. The epidemic of 1879 had been preceded by a very dry year. The dangerous condition of the water-supply has been made the subject of repeated warnings uttered over and over again during the last quarter of a century. The present medical officer of health was particularly strong in his protest 20 years ago. Since then circumstances recalling the present conditions have occurred more than once but not with the same fatal effects. For instance, in his report for the year 1890 Dr. C. Harrison says :—

As to the use of the Witham water I stated that the result of analysis of water taken at various points showed that organic matter finding its way into the Witham at different spots was to some extent oxidised in its passage down the river but that within a few miles of Lincoln the stream was so contaminated with unoxidised sewage as to be unfit for domestic purposes. Since such is the condition of the water when fully exposed to the air it is easy to understand that the Witham being covered with ice several inches thick for three or four weeks, as it was lately, the water would contain a much greater amount of impurity.

This is very similar to what has occurred this year, yet in 1890 there were only seven deaths from typhoid fever and in 1891 not more than two deaths from this disease. But in the latter year there were some very severe cases of diarrhœa which were attributed to the water. This water was drunk by 750 occupants of the Bracebridge County Asylum and 73 cases of diarrhœa followed just at the time when the river Witham was frozen over. Inhabitants of Lincoln were also inconvenienced in the same way and the water was held responsible because the inhabitants of Upper Bracebridge, some of whom lived within 50 yards of the County Asylum, did not drink the Lincoln water and did not suffer from this epidemic of diarrhœa. The results were not, however, very serious, for including the deaths from infantile diarrhœa there were only 29 fatal cases in 1890 and 14 in 1891. In the following year, 1892, attention was called to the insufficiency of the filtering media and the increased consumption of water. We are not told that the inhabitants let their taps run during the frosty weather so as to prevent the pipes freezing and bursting, but if they did so this year there is no reason why they should not have taken the same precautions in 1890. If in such circumstances the filters were overworked on the present occasion perhaps the same thing occurred then, but these details were not investigated because though very similar causes, so far as the water-supply is concerned, seemed to have been in operation no epidemic of typhoid fever ensued.

It has been seen, therefore, that, according to the reports of the medical officer of health of Lincoln, the conditions of the water-supply in 1890 and 1891 were very similar to the conditions prevailing during the present winter. Nevertheless there were only a few cases of typhoid fever. The argument may probably be brought forward that there was no epidemic because the water, though foul, did not contain the specific germ. In that case it may be asked, How did those few persons who suffered from typhoid fever contract the disease? Typhoid fever has always been present at Lincoln. During the ten years 1881 to 1890 there were 87 deaths attributed to this cause, or an average of 8·7 per annum. The population of Lincoln was estimated at 37,313 in 1881 and at 47,061 in 1890. Putting the average population for the ten years at 42,000 and the average annual number of deaths from typhoid fever at 8·7, this gives an annual average death-rate from typhoid fever of 0·2 per 1000 of the population. But it is necessary to remember that in the previous decade, during the year 1879, there was a severe epidemic when 39 deaths from typhoid fever occurred. This, for the population which then amounted to about 35,000, equalled for the one year a death-rate from typhoid fever of 1·11 per 1000. So far the deaths due to the present epidemic amount to 63 and this on the actual population of 50,500 is equal to a death-rate of 1·22 per 1000. The epidemic now prevailing threatens to be more serious than that of 1879 but up to the present the two are about equal in regard to the proportionate number of fatal cases per 1000 of the population. During the next decade, from 1891 to 1900, there were only 70 deaths attributed to typhoid fever, and this in face of the increasing population shows a considerable reduction in the prevalence of the disease. So we have first a decade concluding with 1880 with a serious epidemic. In the next decade there are only a few cases giving an average annual death-rate of 0·2 per 1000. In the third decade this small average is considerably reduced; but during the fourth decade, after a lapse of about 26 years, another serious epidemic breaks out. Is there such a thing as periodicity in the return of typhoid fever epidemics?—for instance, one severe epidemic per generation, at least where the conditions remain substantially the same. At Lincoln there does not seem to have been any very substantial change during that time in the general system of water-supply and of drainage. It was in 1871 that the corporation bought the waterworks and the present system of sewers was constructed from 1877 to 1881. A number of alterations have been made since then in the sewage settling tanks and the methods of treating the sewage when it reached the sewage farm but that would scarcely influence the dwellers within the city. Undoubtedly the tendency should be to effect a constant improvement in the details of the connexions between the houses and the sewers but this is often marred by jerry-builders. In any case the general system, both in regard to water-supply and drainage, has not undergone any radical change for some 25 years.

With the present decade we find recorded not only the deaths from typhoid fever but the notification of the cases. Thus, in 1901 there were 15 cases notified, resulting in five deaths. Further, and this is most useful, details are given about each case. Of the 15 cases nine were males and six were females. In three cases the disease was contracted outside Lincoln, one patient for instance, had been nursing a case of typhoid fever at Leeds. In regard to the remaining 12 patients sanitary defects were found in the houses inhabited by nine of these cases, and of four new houses inhabited by patients two were defective. There seems to be, so far as these cases are concerned, a connexion between the disease and the insanitary condition of the patient's home. In 1902 there were 13 cases and three deaths. Of these eight were female and five were male. Three of the cases had obviously been imported. Of the remaining ten, three are described as living in dirty, over-crowded places; two of these were in back-to-back houses. For the year 1903 we are told that 32 cases were notified, though there were only four deaths from this cause. Unfortunately the details as to the condition of the houses are not given. 14 cases occurred in August after the annual holiday when many people made excursions to the seaside where it is thought that they ate contaminated shell-fish. In 1904 only six cases had been notified before what is generally considered the commencement of the present epidemic. The last of these six cases was notified on Oct. 15th. Then a clerk employed in a brewery—that is to say not a poor man or a man living in a poor quarter—was notified on Dec. 2nd as suffering from typhoid fever. The next case was in the cathedral yard in a very fine house and the sufferer may be qualified as belonging to the wealthy classes. On Dec. 27th there were two more cases. These four first cases were all on the height which is dominated by the minster. On Dec. 28th there were two more cases and the disease now began to make its appearance in the lower part of the city. On the 29th and the 30th there was one case on each day and three cases on the 31st. Altogether there were 11 cases in December, ten of them having occurred since Dec. 22nd. Up to Jan. 23rd cases were notified for 11 out of the 23 days and then only one or two cases excepting on the 7th when there were three cases. On Jan. 24th the epidemic began to assume serious proportions. There were 13 cases on that day and 23 on the following day, on the 28th no less than 59 cases, and 42 and 45 respectively on the two last days of the month. Altogether there were 18 cases up to Jan. 23rd and 237 cases during the remaining eight days of the month. The cases occurring in the month of February bring up the total to 745 on the morning of the last day of the month, though there now seems good reason to believe that the epidemic is subsiding.

It is too soon from the data, the facts are not yet clearly ascertained, to pronounce any emphatic opinion as to all the causes of the mischief. Undoubtedly there is every probability that the filters were overworked and that the water, which was obviously contaminated, was allowed to pass when it was insufficiently purified. But there were other factors at work, though it is more difficult to discover and to describe them than simply to denounce the water.

In respect to the question of the water-supply I am requested to explain that although in February, 1903, the tool employed for boring broke work is now being continued with great activity. Instead of boring, the hole made by the instrument, which was two feet wide, has been converted into a well eight feet wide and this is to be continued 800 feet downwards when the position where the boring tool broke will be reached. So that the hope of piercing below the

sandstone and reaching an ample supply of pure water has not been abandoned.

March 1st.

Postscript.—The sanitary authorities have just concluded an investigation which I ventured to suggest might be instructive. They have gone over the notification book and examined the cases in respect of age and sex. There has only been one case of an infant below one year of age, but from one to five years there were 25 males and 21 females who contracted the disease; from six to ten years, 85 males and 38 females; from 11 to 15 years, 61 males and 56 females. The total is 172 males and 115 females below the usual age for work. Of the adults between the age of 16 and 25 years there were 137 males and 93 females; from 26 to 35 years, 68 males and 44 females; from 36 years and over, 61 males and 42 females. The total for adults is therefore 266 males and 179 females. Thus it is quite evident that the males are the principal sufferers. It may be said that working in foundries and exposed to the heat of furnaces many men drink a large quantity of water, but this does not apply to youths and children, and why should it be from six to ten years that boys are specially susceptible?

For the last seven days, from Feb. 22nd to 28th inclusive, the number of cases notified daily were 10, 5, 20, 5, 3, 5, and 8, giving a total of 56 cases during the last seven days. During the preceding seven days there were 80 cases and this followed upon 120 cases for the previous seven days. The epidemic, therefore, seems to be gradually subsiding.

(To be continued.)

CHOLERA AND PLAGUE IN THE NEAR EAST.

(FROM THE BRITISH DELEGATE ON THE OTTOMAN BOARD OF HEALTH.)

DURING the past month the cholera epidemic in Asiatic Turkey has been almost confined to Van and its neighbourhood. As reported in my last letter[1] the disease appeared there at the end of December. It has not, so far as may be judged by the official returns, caused a very serious mortality and the outbreak is now apparently at an end. The following are the figures reported during the last five weeks:—

	Cases.	Deaths.
From Jan. 8th to Jan. 13th	14	5
,, ,, 14th ,, ,, 21st	34	7
,, ,, 21st ,, ,, 25th	2	1
,, ,, 26th ,, Feb. 4th	0	0
,, Feb. 5th ,, ,, 12th	0	0

The only other places where cholera has been present in this period have been: the village of Tavile, in the Gulamber district, where on Jan. 9th there were 5 cases with 3 deaths, followed by 6 cases and 5 deaths between the 9th and the 15th of that month; the village of Kerbil, in the *caza* of Mahmudieh, where the disease was reported to be prevalent in the middle of January but from which no figures have been received; and the village of Yabar, in the *sanjak* of Suleimanieh, where 5 cases and 3 deaths occurred on Jan. 14th. It is more than possible that the apparent subsidence of the epidemic in the elevated districts of Turkish Armenia is in part due to the lack of information owing to the cold weather and heavy snowstorms that have been prevailing in these regions.

In Persia there has also been recently a considerable diminution in the cholera outbreak, although—in marked contrast to the weather prevailing in Turkey—the winter this year in Persia is described as being a remarkably mild one, with unusually little snowfall. The following is a summary of the reports received from the Turkish sanitary delegate on the Tehran Board of Health. Writing on Nov. 30th, 1904, he stated that, apart from two cases occurring in connexion with the regiment of recruits mentioned in my last letter, no other cases had recently been observed in Tehran. At Resht 20 deaths a day were still being reported. In Bushire there had been a great improvement during October, the disease having disappeared from Bushire and its neighbourhood and also from Hendian and the island of Kharg, where it had shortly before made its appearance. At Mohamerah there had been a violent recrudescence of cholera in the middle of October, causing a very high mortality but not lasting for long. At Tabriz the mortality had sunk on Oct. 14th to 3 or 4 a day. In a second report, dated Dec. 7th, it was stated that cholera was still prevalent among the fishermen at Enzeli, on the Caspian Sea; at Kazerun 20 deaths were occurring daily; at Kerman the daily mortality was 30; at Kazvin the disease was still present, as also at Sinh-el-Mahal and Monteh; and 9 deaths daily were occurring at Kelat. Sporadic cases were still reported from the Ghilan province. The outbreak was diminishing at Kerganeroud, Tabriz, Shefa-Rud, Asternabad, and Khoy. It was increasing at Astara, Gheratikan, and Hamadan and its neighbourhood. It had reappeared at Ghalé-Nour, Nouberan, and at Ahr, where 10 or 12 deaths were occurring daily. At Khaliffé-Kendé the daily deaths numbered 20 or 30 and at Urumiah 30.

The next report, dated Dec. 14th (quoting from reports received from the Customs authorities, dated Dec. 7th) stated that recent rains had caused a revival of the disease in most of the villages lying between Kermanshah and Hamadan. The first-named town was said to be in a very insanitary state in spite of orders having been given for its improvement. On the 10th of the month the disease was reported to be showing renewed activity at Hamadan where the mortality had risen to 27 daily, at Bender-Guez 12 deaths, and at Kouré-Tour 11 deaths were occurring each day. Another report, dated Dec. 21st, announced the appearance of cholera at Zehab, at Sheraif-Baiani, and among the Djaf tribe of nomads near Suleimanieh. The epidemic at Urumiah was then over, after causing a total mortality reckoned at 1500; at Khaf the outbreak was increasing; at Khoy, where the mortality had risen at one time to 40 or 50 daily, it was diminishing; at Talishé and Tounekaboun 10 deaths were occurring daily in each. The epidemic at Saoutch-Boulak was said to be at end.

The following week's report, dated Dec. 28th, stated that there had been a slight revival of the disease at Mohamedabad, near Meshed, with a daily mortality of 3 or 4. The outbreaks at Kermanshah and at Bender-Guez were at an end. Sporadic cases had been occurring at Shivan (Lingah district) since Dec. 15th and also in all the villages of the Asterabad district. The outbreak at Khoy was still on the decline; the infection was still present at Bellesaar and Ardebil; and its activity at Ispahan was increasing, the mortality there having risen to 30 or 40 daily. The next report, dated Jan. 4th, furnished some details of the outbreak at Khoy. It seems that the disease appeared there on Nov. 20th; up to the 29th of that month the daily deaths averaged about 30; they then began to increase until on Dec. 6th they were as many as 115 in the day. The mortality then diminished but the disease spread to many of the villages in the neighbourhood, especially in a northerly direction. The outbreak there had been checked by the extreme coldness of the weather. At Shapur there had been a severe epidemic but it was then rapidly declining. At Kerman the outbreak had all but completely subsided when, owing to the influx of returning refugees, there was a fresh outbreak of the disease. Cholera was still present in many of the villages of the Khorassan province. At Bujnurd the daily deaths numbered 15; at Kifan 5. At Shirvan they never rose above 16. The disease was then seriously prevalent in several villages near Khaf, the total mortality in all the villages taken together amounting to about 50 daily. The latest report, dated Jan. 11th, mentions the occurrence of sporadic cases at Shuster, with a daily mortality of about 3 or 4, while in the rest of Arabistan the public health was said to be satisfactory. At Nishapur, in the neighbourhood of the turquoise mines, there had been a revival of the disease, as many as 100 deaths occurring in a week. There was a rumour (as yet unconfirmed) that a fresh outbreak had occurred at Kermanshah.

It is of interest to note that in the above reports mention is made of the serious prevalence of small-pox "in all parts of Persia." It appears to have been especially severe in Kerman, where it is said that not a single house has escaped without a case and where not less than 5000 children are thought to have perished from the disease. A mild epidemic of influenza was prevalent in Tehran in the second week of January and other diseases mentioned as present there are diphtheria, measles, scarlet fever erysipelas, malaria, and a few cases of typhoid fever

On Russian territory there has recently been a very marked

[1] THE LANCET, Jan. 28th, 1905, p. 260.

decline in the cholera outbreak. In Transcaspia, between Dec. 16th and 21st, 3 sporadic cases were observed in Askhabad and at Tashkent there was only a single case on the 25th. On the 27th a single case occurred among the troops at Knachka and between the 25th and the 31st there were 6 cases and 3 deaths in Tashkent. In the Caucasus and Transcaucasia the recent course of the epidemic has been as follows. At Baku, Balakhani, and in the Djevat district 17 cases with 3 deaths occurred between Dec. 21st and 28th and in the Lenkoran district of the Baku government there were 268 deaths between Dec. 14th and 21st and 74 deaths between the 21st and the 28th. Between Dec. 28th and Jan. 9th no figures were published but between Jan. 9th and 15th there were only 4 cases and 9 deaths in the whole of the Baku government. In Tiflis the epidemic is apparently over, no cases having been reported thence since Dec. 7th. In the Elisavetpol government there were a few cases of cholera in the week ending Dec. 21st, 3 suspicious cases on the railway in the following week, and 1 case between Jan. 9th and 15th. In the Erivan government 38 cases and 33 deaths were reported between Dec. 21st and Jan. 1st and 9 cases with 9 deaths between Jan. 9th and 15th.

On the Volga there has been an equally marked decline in the epidemic. In the Astrakhan government a single case occurred between Dec. 20th and 27th, another single case in the following week, and apparently none since. In the Saratof government there were 8 cases and 3 deaths (all at Tsaritsyn) between Dec. 21st and 27th, 15 cases and 10 deaths in the succeeding week, and 10 cases with 3 deaths between Jan. 9th and 15th. In the Samara government the epidemic appears to be at an end, the last case having been reported from the Nikolaief district between Dec. 21st and 27th.

Some details of the remarkable outbreak of pneumonic plague which (as mentioned in my last letter) recently appeared in the Uralsk province of Southern Russia are now available. It seems that the disease made its appearance in the latter half of November, in two Kirghiz *stanitzas* or settlements, called Saraitchikevo and Yamankhalinsk. These settlements are situated on the Ural River, in the Gurief district (*uyezd*) of the Uralsk province. How the infection reached them is quite unknown. The first 2 cases, both fatal, were observed in a Kirghiz family and then the disease began to spread among the other Kirghiz families in the neighbourhood and subsequently to the Cossack population. Between Nov. 24th (the date of the first case) and Dec. 26th no less than 190 deaths from the disease occurred in the two settlements named. The infection also appeared in a third settlement called Sorotchinsk; in the three settlements together the mortality had risen to 30 per day before Dec. 27th; from that date to Jan. 2nd there were 89 cases and 97 deaths. The figures for the next week have not been published but between Jan. 10th and 16th there were only 3 cases, all fatal. The disease appears also to have spread to the Inner or Bukeëf Horde of Kirghiz, to the west of the Ural, among whom 23 deaths from plague were reported between Dec. 21st and Jan. 13th.

Finally, a serious outbreak of anthrax (Siberian plague or ulcer as it is called in Russian) is reported from the Viatka government. In the week ending Dec. 21st as many as 86 cases were recorded; in the following three weeks the numbers fell to 47, 46, and 31 respectively.[2]

Constantinople, Feb. 16th.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

Manchester Hospitals.

YEAR by year at the meetings of the subscribers to our various hospitals the same story is told: increase of the demands on their resources, patients flocking to them in greater numbers, and the appliances required for carrying out the treatment of the day more numerous and costly. At the same time removals from the district and the loss of old subscribers by death bring down the list of subscriptions. Wealth increases, judging by lavish, not to say ostentatious, expenditure, and is more widely spread, yet the subscription lists tend to shrink rather than to expand and it seems as if the very generous standard as to the style of living set up by the unwritten middle-class conventionalism of the well-to-do were drying up the springs of charity. The same names occur in the subscription lists of the various charities and the pecuniary support and active interest shown in their management are limited too much to a few well-known families and firms that have for years, and in some cases for generations, been looked to as helpers of those less fortunate than themselves. In the meantime the constant appeals for subscriptions, large or small, to enable these deserving and over-strained charities to pay their way fall upon ears dulled and deadened to indifference by ceaseless repetition. This state of things was illustrated at the annual meeting of the supporters of the Northern (formerly the Clinical) Hospital for Women and Children the other day. It is in a district occupied largely by the "aliens," about whom so much is heard just now, where poverty is more the rule than the exception. The treasurer said that the expenses "had been kept down to a minimum but within the last 20 years there had been a remarkable increase of charitable institutions in Manchester and the older hospitals found it more and more difficult to get the support they needed. The district could not do without that hospital and it must go on as long as there was a penny in the till." There is an average deficit of nearly £1000 a year. With all these numerous charities crying "Give, give," there must be waste, overlapping, and abuse, so that it is to be hoped that a valuable suggestion by the chairman, Mr. Edward Holt, may be acted on. He said: "It would be a good thing if a conference were called by the Lord Mayor with a view to forming a central organisation for the more economical working of all the hospitals in the city and district." If carefully and tactfully managed such an organisation might do much to harmonise discordant and rival interests. It is not seemly nor does it show the spirit of true charity for medical charities to seek for custom—so to speak—and vie with each other as to the number of patients on their lists and it most certainly tends to bring about the abuse of charity by those able to pay.

Are Carlisle's Medical Charities Abused?

The above remarks on the medical charities of Manchester have their bearing on what is found in other places. It is not merely that charities suffer from lessening receipts but those really in need of help are supplemented too often by large numbers who are not in need of it. At the annual meeting on Feb. 21st of the friends of the Carlisle Dispensary some striking facts were given by the Rev. Chancellor Prescott who said that when they added the total of their patients, 4825, to the 2882 out-patients attended at the Cumberland Infirmary they found there were between 7000 and 8000 persons receiving gratuitous medical attendance out of a population of 45,000, and this without taking into account those attended by the Poor-law medical officers. He thought this far too large a number and "the question arose whether people were receiving free medical attendance who ought not to be." If this is not the case Carlisle would seem to be very far from prosperous. It was suggested that a committee representing the various charities should inquire as to the existence of abuse. Is the old spirit of self-reliance and self-help departing and are the people becoming pauperised?

Small-pox.

Dr. J. Niven, the medical officer of health, was able to announce last week that Manchester is free from small-pox and this for the first time since the end of 1903. There are, however, said to be about 18 cases in Droylsden on the outskirts.

Royal Infirmary.

At the meeting of the infirmary board yesterday the architects reported that it was hoped to send the first bills of quantities to the competing contractors almost at once, that they would be in their hands by the end of March, and that the tenders might be expected to be in by the middle of April. A correspondence has taken place between the corporation and the board as to the transfer of the Piccadilly site. The former wants it when there is provision made at the Stanley Grove site for 300 patients. The chairman of the board had drafted a reply, which was afterwards adopted, to the effect that they did not so read the Act of 1903. The scheme was that the new infirmary should afford twice the accommodation of the present one and, when it was ready possession was to be given to the corporation. But as the Act imposed they would have to proceed with due diligence.

[2] All the dates mentioned in this, as in the preceding letters, are according to the New Style

It was to their own financial advantage that the work should be carried on as expeditiously as possible and due diligence would be used.

Feb. 28th.

LEEDS.

(FROM OUR OWN CORRESPONDENT.)

The Leeds Workpeople's Hospital Fund.

THE seventeenth annual meeting of the supporters of the Leeds Workpeople's Hospital Fund has been held. Prior to 1887, when this fund was commenced, the medical charities received the workpeople's subscriptions through various channels and it was felt that if properly organised efforts were made and all subscriptions were paid into a common fund the amount obtained from the workmen of Leeds would be increased to a considerable extent. That this has been the case is shown by the fact that the total income for the year 1904 has amounted to the sum of £11,236, which with the balance brought forward from 1903 raises the total amount at the disposal of the committee to £12,565. During the 18 years of its existence the committee of management of the fund has admitted from time to time additional charities to benefit by the annual distribution of grants and some few years ago a new departure was taken when it was decided to institute convalescent homes to be acquired and to be supported from the general fund. At the annual meeting the following grants were decided on: Leeds General Infirmary, £5000; Leeds Public Dispensary, £750; Hospital for Women and Children, £750; Tuberculosis Association, £280; District Nurses' Association, £225; and some smaller grants. A sum of upwards of £2000 was carried to a reserve fund for the extension of convalescent homes.

The Sale of Poisons.

As was mentioned in my letter on Jan. 21st a fine was imposed on a Bradford druggist who was prosecuted by the Patent Medicine and Drug Vendors' Association for having sold Rankin's ointment. This preparation contains veratrine and it was held that the defendant had "sold a poison—to wit, veratrine—to a person then unknown to you, and not introduced by a person known to you." The case has been taken to the Court of Appeal. A case on precisely similar lines was heard by the Leeds stipendiary magistrate in which 15 chemists and druggists were charged with selling the same ointment under the same conditions. In evidence it was stated by Mr. F. W. Richardson, analyst, that the ointment contained 1·06 per cent. of veratrine, which represented a total amount in the box examined, which was one of those purchased, of 2¼ grains. The stipendiary intimated that he would reserve judgment until the Court of Appeal had given its decision in the Bradford case. The defendants were also charged with selling Easton's syrup, which, of course, contains strychnine, under conditions at variance with the Act, but the hearing of this part of the cases was adjourned. At the instance of the Inland Revenue authorities a "general dealer" was summoned for selling a preparation liable to stamp duty without a stamp and without a licence. The preparation in question was that known as "daisy powders" which are believed to consist of antifebrin. The former charge was withdrawn as a conviction was obtained on the latter.

Professor Sims Woodhead on Temperance.

Professor G. Sims Woodhead is so well known to the medical profession that one was not surprised to find that an invitation issued to its members by the Lord Mayor of Leeds to hear him speak on "An Aspect of Physical Degeneration" was largely responded to. Professor Sims Woodhead introduced his subject by commenting on the report of the inter-departmental committee, saying that if actual degeneration in the national physique was not going on there was at least an interference with that natural rate of improvement which might be expected under improved conditions of sanitation. As causes of deterioration we had extreme luxury on the one hand and extreme poverty on the other, but with both was associated an excess in the use of alcohol. Luxury and alcoholism had a lowering effect on the birth-rate of the country and militated against the good nutrition of the child after birth. By lowering the wage-earning power of the parents and by using up money which otherwise might be spent on food alcohol lessened the chance which children had of being adequately fed. He also maintained that experiments, carefully conducted, had demonstrated that alcohol taken in amount much below what was usually regarded as excessive interfered with efficient brain work and he pointed to the fact that total abstainers were able to insure their lives at a lower rate than those who were not abstainers. Of course, it does not require Professor Sims Woodhead or anyone else to convince any thinking body of medical men that excess in the use of alcohol is damaging to the individual and to the nation on every ground, but opinions certainly do differ as to the precise point at which such excess begins. It had been announced that a discussion would follow on the paper and some disappointment was occasioned by the Lord Mayor stating that there was unfortunately no time for this. As between total abstinence and excess no one can hesitate but there are many thinking men who maintain that as against total abstinence a strict temperance is as favourable to health and is even a higher moral position.

Appointments at the University and Medical Institutions.

Dr. E. F. Trevelyan, who lately retired from the professorship of pathology, has been appointed to the lectureship on therapeutics and materia medica. Dr. A. E. Porter, the assistant medical officer of health of the city, has been appointed demonstrator of public health under Professor J. Spottiswoode Cameron. The election committee of the Hospital for Women and Children has selected Mr. J. F. Dobson for the new appointment of assistant surgeon for children, and the authorities of the Public Dispensary have secured the services of Dr. Oskar C. Gruner for the new post of honorary pathologist.

Feb. 28th.

WALES AND WESTERN COUNTIES NOTES.

(FROM OUR OWN CORRESPONDENTS.)

Public Slaughter-houses and Meat Inspection.

AT a meeting of the West of England and South Wales branch of the Incorporated Society of Medical Officers of Health held at Newport (Mon.) on Feb. 23rd Dr. J. Howard-Jones (medical officer of health of Newport) contributed a paper upon Public Slaughter-houses and Meat Inspection. The principal requirements necessary in a public slaughter-house he considered to be nearness to a cattle market and railway station to which a connecting siding should be constructed, a lairage with separate stalls and water-tight flooring, well-lighted and properly ventilated killing-rooms with impervious but not too smooth floors laid to a slope, absence of wooden fittings, the removal of waste in sealed wagons, separate stalls for hospital use and for killing and storing suspected carcasses, ample water-supply, and the provision of a destructor for treating inferior and condemned meat. Among 1063 towns in England and Wales there are at the present time only 84 public slaughter-houses. Included in this latter number are Cardiff, where there is no private slaughtering, and Newport and Swansea, where there are only two private slaughter-houses. London does not possess one public slaughter-house but has about 600 private ones. The value of the meat condemned annually in Newport is about £200. The system of insurance which has been in force in the town during the past two years was spoken of in favourable terms. The scheme involves the payment to the auctioneers by the dealers or farmers of 1s. per head of cattle sold. The auctioneers pay to the butchers two-thirds of the value of the animal thus insured in the event of its seizure and condemnation owing to the presence of tubercle. The unsatisfactory system of meat inspection in country districts was commented on by Dr. Howard-Jones who urged that no meat brought into a town which is provided with a public slaughter-house should be offered for sale until it had been inspected at the public slaughter-house and that every such carcass taken for inspection should have attached to it the heart, lungs, liver, and kidneys.

Merthyr Municipal Houses.

At the same meeting of the society Mr. D. J. Thomas (medical officer of health of Merthyr Tydvil) gave an account of the steps which had been taken by the urban district council of Merthyr to supply workmen's houses in that town.

In March, 1900, the council decided to build 100 such houses and secured suitable land for a term of 999 years at an annual rental of three-halfpence per square yard. The houses were built by contract for £15,950, but the making of the streets, law charges, payment of royalties for stone, gas fittings, and payments to the clerk of works involved an expenditure of another £2000, so that each house has cost £170. They are let at an inclusive rental of 22*s.* 6*d.* per month. The area at the rear belonging exclusively to each house measures 545 square feet. The houses are built in eight blocks on both sides of two streets 30 feet wide, with a secondary means of access 10 feet wide at the rear. A house contains on the ground floor two living rooms and a pantry and on the first floor there are three bedrooms. There are a separate coal-house and water-closet for each house. Mr. Thomas admitted that these houses at Merthyr did not meet the wants of a large class of men who, as labourers, earned less than 20*s.* a week and could not afford to pay in rent more than 3*s.* or 3*s.* 6*d.* a week, and he discussed the desirability of securing some of the more satisfactory of the older and insanitary property and by extensive repairs making them reasonably fit for human habitation. The requirements of the large number of single men who find employment in the ironworks and collieries he thought might be met by the provision of large lodging-houses of a better stamp than ordinary common lodging-houses.

The Medical Officer of Health of Gloucester.

At a meeting of the sanitary committee of the Gloucester city council held on Feb. 10th Dr. John Campbell handed in his resignation as medical officer of health of the city and port sanitary authority and asked to be relieved of his duties by March 25th, when he is about to leave the town. At a subsequent meeting of the committee it was decided to recommend the council to appoint a medical officer of health for the city and port at an inclusive salary of £400 per annum, his duties to include attendance at the isolation hospital and other duties to be formulated by the education committee. This recommendation was referred to the committee at the meeting of the council on Feb. 22nd in consequence of a communication received from the Local Government Board. The Board stated that it had come to the conclusion that where a sanitary authority secures the whole-time services of a medical officer of health whose training has had special concern with public health work apart from his ordinary professional qualifications it is desirable to insure that his position will be such as to enable him (1) to perform his important duties impartially and independently; and (2) to be regarded as in no way inferior to that of other medical men who are engaged in the general practice of their profession. It was further added that the Board was of opinion that the total salary of a medical officer of health who is so qualified and who devotes his whole time to his duties should not be less than £500 per annum. Dr. Campbell's salary was £250 per annum but he was not debarred from private practice.

Royal West of England Sanatorium at Weston-super-Mare.

The annual report of this convalescent home is usually of a satisfactory nature both as regards the amount of financial support given to it and the number of patients who receive permanent benefit from residence in the institution. In the early part of 1902 the whole of the drainage system was remodelled at a cost of about £2000 and the sanatorium was closed for four months while this work was being carried out. During the remaining eight months of that year 1668 patients were received, in 1903 there were 2254, and in 1904 there were 2353. Of these last 1140 were discharged fully recovered, 546 were much improved, 467 were improved, 62 were much the same as on admission or no better, one died from heart disease, and 120 were unfit cases for the home. The expenditure during 1904 amounted to £3904 and the income was £3838. At the general meeting of the subscribers held on Feb. 18th Dr. E. H. W. Swete drew attention to the number of patients sent in who were unsuitable for treatment in the sanatorium; he also referred to the excellence of the institution for the treatment of cases of pulmonary tuberculosis in the earlier stages of the disease. The sanatorium buildings are very well placed at the end of the promenade and overlook the Bristol Channel.

The Lord Chief Justice on Habitual Criminals.

When charging the grand jury at the Gloucestershire assizes on Feb. 18th the Lord Chief Justice said that he had for a long time been of opinion that habitual criminals or those who had sunk so low that imprisonment had no deterrent effect upon them should be detained in institutions other than prisons. He referred to them as persons who had a twist in their composition and upon whom prison discipline appeared to have little or no effect, who would never voluntarily work, and if allowed their liberty inevitably returned to crime for a livelihood. He asked the grand jury to express an opinion as to whether some alteration might not be made in the existing treatment of this class of criminals. It was a question, he said, which was being considered by His Majesty's judges and by the Home Secretary.

Action at Law against the Clevedon Urban District Council.

At the Bristol assizes, before Mr. Justice Lawrance, a jury awarded £50 as damages to the owner of some houses at Clevedon who alleged that his property had been depreciated in value owing to the negligence of the district council in not keeping in repair a sewer which was in proximity to the property and which caused considerable flooding of the premises.

South Devon and East Cornwall Hospital.

The annual meeting of the subscribers to this institution was held at Plymouth on Feb. 21st. The medical report stated that 1251 in-patients were admitted during 1904 as compared with 1336 in 1903, the out-patients for the corresponding periods being 3369 and 2976 respectively. The daily average number of in-patients was 119. The financial statement showed that the ordinary income, excluding legacies, amounted to £7631. The legacies received during the year were £8697 and enabled the committee to pay off the deficit on the current account for 1903 and 1904 and also to set apart an ample sum for investment. The ordinary expenditure was £8657.

Feb. 27th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Royal College of Surgeons in Ireland.

THE honorary Fellowship of the Royal College of Surgeons in Ireland was formally conferred on Dr. Anthony Traill, the Provost of Trinity College, on Feb. 25th, when he signed the roll as an honorary Fellow of the College. At the subsequent annual dinner the President, Mr. A. Chance, read a letter of apology from His Excellency the Lord Lieutenant which stated that he was obliged to go to London and said that no inference of a political character should be drawn from his regrettable absence. The toast of "The King," which was given by the President, was enthusiastically honoured, as was also the toast of "His Excellency the Lord Lieutenant." The Vice-President, Mr. H. R. Swanzy, proposed the toast of "The Provost—the new Honorary Fellow of the College." In reply, the Provost made a most interesting speech, in which he briefly traced the history of Trinity College since its beginning in the reign of Queen Elizabeth, referring especially, of course, to the long list of provosts who preceded him. "I take it," he said, "that this honour has been conferred upon me as a compliment to me as provost of Trinity College but principally because I occupy a unique position as the first medical and surgical provost since the foundation of the College by Queen Elizabeth. I am a Doctor in Medicine and also a Master in Surgery." In conclusion, the Provost said that there were 35 provosts since the College was founded and that during all those years there were only four lay provosts. Of himself he could say that he was the first to hold the degree of M.D. and M.Ch., which had that evening received the kindly recognition of that famous corporation. In reply to the toast of "The Guests," proposed by Sir Charles Cameron, Sir Antony MacDonnell delivered a clever speech which, however, was carefully reticent.

Royal National Hospital for Consumption for Ireland.

The annual general meeting of the governors of the Royal National Hospital for Consumption was held in the hall of the Royal College of Physicians of Ireland on Feb. 24th, Mr. R. O'Brien Furlong, C.B., occupying the chair. In moving the adoption of the report the chairman said that it was of a very encouraging character as they had at last succeeded in erecting a fully equipped hospital for 100 poor patients at Newcastle, co. Wicklow, and that it was now occupied by 95 inmates. The adoption of the report was seconded by the

President of the Royal College of Physicians of Ireland. The Registrar-General, who was present, said that for the year 1903, the last year for which they had detailed figures, tuberculous disease stood at the head of the causes of death, the number of patients who succumbed to that malady in Ireland being 12,180, or 2·8 per 1000 of the estimated population. This showed an increase when compared with the previous year, 1902, the rate for which was 2·7 per 1000. What he stated sufficed to show the urgent need for a collective effort to combat the ravages of this dreadful scourge.

The Milk Question in Belfast.

AT a meeting of the Belfast public health committee held on Feb. 16th a deputation of citizens was received who urged that the Belfast city council should take steps to adopt stringent rules in reference to the milk-supply of Belfast. It appears that there is some power to control the milk trade in the city but no laws exist in reference to the milk coming from the surrounding districts outside the Belfast area. It is reported that the Vice-President of the Irish Agricultural Board, Sir Horace Plunkett, was urged to try to establish in various parts of Ireland dairies on the modern Danish system which would serve as object lessons to show how pure milk could be obtained and, it is said, he was willing to act with the municipal authorities. An immense deal needs to be done by the Belfast health authorities in reference to the milk problem which has been engaging so much of the attention of other municipalities in the United Kingdom. At a meeting of the public health committee held on Feb. 23rd the following motion was carried :—

That, with a view of combating tuberculosis, the council be recommended when next promoting a Bill in Parliament to include provisions giving power to prevent the supply of milk from any dairy inside or outside the city if their medical superintendent officer of health is of opinion that tuberculosis is caused, or is likely to be caused, to persons residing in the city, from consumption of the milk supplied from such dairy.

But, as pointed out in a local paper, the resolution does not go far enough, inasmuch as tuberculosis is not the only disease that may be transmitted by milk (it is probable that it is the least frequent disease conveyed directly by milk to man) and further, it is simply begging the question to do nothing until another Bill in Parliament is promoted (which may entail a delay of years) when by applying directly to the Local Government Board for a special order in the matter some immediate steps might be taken to insure a proper control of the milk-supply of Belfast, a procedure which should have been taken years ago.

The New High Sheriff of Belfast.

Dr. H. O'Neill, the first medical high sheriff of Belfast, was sworn in as high sheriff of the county and city of Belfast on Feb. 23rd and was afterwards in the police courts congratulated by the magistrates and the members of the legal profession. He has signalised his entrance upon the duties of his office by contributing the following sums to medical charities: Royal Victoria Hospital, £50; Mater Infirmorum Hospital, £10; Forster Green Hospital, £5; Home for the Blind, £5; Maternity Hospital, £5; Day Nurseries, Belfast, £5; Society for Providing Nurses for Sick Poor, £5; Samaritan Hospital, £5; Presbyterian Orphan Society, £5; Protestant Orphan Society, £5; and Domestic Mission to the Poor, Belfast, £5.

Royal Victoria Hospital, Belfast.

At a meeting on Feb. 15th of the board of management of the Royal Victoria Hospital, Belfast, it was moved by Mr. James Davidson, the treasurer, seconded by Professor J. W. Byers, and carried unanimously, that another unit consisting of 32 beds should be opened. This will be of great advantage to the medical staff, owing to the great difficulty at present to find beds for patients.

The Samaritan Hospital, Belfast.

At the annual meeting of the friends of this charity held on Feb. 20th it was reported that there had been during the year 435 extern and 134 intern patients, and of these latter 118 required surgical operation. Seven patients had died in hospital during the year. Financially there was a debit balance at the beginning of the year of £230 2*s.* 10*d.*, and at the end there was a debt of £191 15*s.* 10*d.* There are, however, investments amounting to £3110. Appreciatory speeches were made in reference to the good work done in the hospital. Dr. J. St. Clair Boyd was re-elected one of the honorary surgeons to the hospital.

The Irish Medical Association.

In several of the Irish daily newspapers reference has of late been made to the report presented to the council of the Irish Medical Association by its special commissioner, Surgeon-General G. J. H. Evatt. This report has never yet been circulated among the members of the Association, many of whom subscribed to a special fund to pay for the expenses of the commissioner. The main body of the profession are most anxious to see the report and feel aggrieved that a few privileged people are allowed publicly to discuss its contents while they remain in ignorance.

Feb. 28th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Tuberculous Milk.

AT a recent meeting of the Academy of Medicine M. Moussu read a paper upon the above subject with a view to affording an answer to the question as to whether tuberculous milk is or is not harmful. According to French law such milk may be sold for food if the tuberculous lesions in the cow are not very marked and provided that the teats are not affected. M. Moussu's experiments go to disprove this view and to show that the tolerance extended to such milk constitutes a real danger. By centrifuging tuberculous milk he was able to collect bacilli which when injected into animals rendered them tuberculous. Of five calves which were fed upon tuberculous milk two became tuberculous. From these results then it would appear that an alteration in the law is desirable.

An Apparatus for employing Continuous Extension in Fractures of the Leg.

Hitherto oblique fractures of the leg have been as a rule treated with the continuous extension apparatus of Hennequin. On Feb. 8th M. Nélaton showed to the Society of Surgery for M. Ombredanne an apparatus devised by the latter. M. Ombredanne's apparatus differs from that of Hennequin in that the plaster boot employed by the latter is replaced by one made of felt, by which the liability to pressure sores is avoided. The plaster channel (*gouttière*) of the Hennequin apparatus is also modified so that there is no danger of any antero-posterior movement.

The Eventual Results of Resection of the Head of the Femur in Irreducible Dislocation of the Hip-joint.

At the meeting of the Society of Surgery held on Feb. 15th M. Walther showed a man upon whom ten years previously he had performed Ricard's operation, excision of the head of the femur, for an old irreducible dislocation of the hip-joint. Despite a shortening of nine centimetres in the affected limb the man was able to walk well, thanks to a high-soled boot. The movements of the joint were very satisfactory and it appeared that a new head had been formed at the expense of the neck of the femur, which had been placed in the acetabulum.

Radium in the Treatment of Skin Diseases.

At a meeting of the Hospitals Medical Society held on Feb. 10th M. Danlos said that in his experience radium was of value in only three kinds of skin disease, namely—tuberculous leprosy, a form of epithelioma (*épithélioma perlé*), and vascular nævus. He added that radium is of value in these diseases only in cases where they exist in a very limited form. Moreover, it is not superior to older methods of treatment. When the lesions in which it is of use are widely spread the x rays give better results and radium possesses merely a provisional superiority for use in cavities such as those of the nose or the larynx which are difficult to reach with the x rays. If, however, radium were to become cheaper it would probably be preferred to the x rays, for its application is much simpler and practically no apparatus is required. But until such a desirable condition is a reality it may be said that the future is with radium and the present with the x rays.

Urban Sanitary Regulations.

A police magistrate has recently given judgment in a case in the following circumstances. Manufacturers of ice are legally liable to deliver such ice in vans which are plainly labeled, "Ice for human consumption," or "Ice not for human consumption." This edict annoyed certain

manufacturers who found a way of evading it. Accordingly, one of them was summoned by the police and was fined five francs.

Feb. 28th.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

The Berlin Court of Honour.

THE Berlin Medical Chamber has published an interesting statistical summary of the work of the court of honour connected with the chamber. The report says that in 1904 there was 1607 medical men under the jurisdiction of the Berlin court of honour which includes the city of Berlin and the province of Brandenburg. The number of cases standing over from the preceding year as not yet settled on Jan. 1st, 1904, was 82, whilst 166 new informations were lodged against medical men during the year 1904. 60 informations came from private persons, 42 from public authorities, 55 from other medical men, six were anonymous, and in three cases medical men asked the court to give a judgment in doubtful questions of medical etiquette. Of these 248 informations 121 proved at once to be unfounded, in 11 a penalty was inflicted without formal proceedings being taken, and in six cases the court declared itself incompetent to deal with the charge. In 27 cases a formal trial took place before the court. In six of these the proceedings came to an end without judgment being pronounced as the accused was found to be innocent; in 13 cases a verdict of "Not guilty" was pronounced; one warning and two reprimands were given. In four cases the accused were reprimanded and directed to pay fines varying from 100 to 300 marks (from £5 to £15); and in one especially grave case in addition to a reprimand and a fine of 3000 marks (£150) the privilege of voting in the elections was withdrawn. Apart from the disciplinary proceedings, the court was asked in 41 cases to settle controversies between medical men. The number of 248 penal cases appears to be rather great in comparison with the total number of 3607 medical men in Berlin and the province of Brandenburg and to be a much higher proportion than the number of penal cases brought before the British General Medical Council which has jurisdiction over all the medical men of the United Kingdom. It must be remembered, however, that the state of the law is different in the two countries. Whereas the General Medical Council has to pass judgment only in cases of "infamous conduct" and to decide whether the offender's name is to be erased from the Register the duties of the courts of honour in Germany are more complex though their power is less than that of the General Medical Council. Cases which in England can only be decided by the courts of law, such as actions for the recovery of fees, may in Germany be brought before the courts of honour. It is worthy of note that in the great majority of cases the court did not open a formal prosecution against the accused because the question was not believed to have anything to do with professional etiquette. It is easy to molest a German medical man by informations lodged against him as he may eventually be asked to justify his conduct; the court will accordingly decide whether a formal prosecution is necessary or not. On the other hand, even when gross misconduct is proved the courts of honour have only the power to fine a medical man but not to deprive him of the status of a legally qualified practitioner as is the case in England. On the whole, the British system appears to be preferable, being more efficacious and at the same time less harassing to the individual practitioner.

Inoculation of Medical Men with Syphilis at Surgical Operations.

At a recent meeting of the Berlin Medical Society Dr. Blaschko read a paper on the above subject. He said that he had himself observed 12 cases of syphilis contracted by medical men in the course of professional work; the liability of practitioners to contract the disease was therefore rather considerable. The primary ulcer as a rule was situated on a finger and early diagnosis was somewhat difficult, the lesion being mistaken for furuncle, herpes, and tubercle. Infection took place either by wounds sustained at operations on syphilitic patients or when at an examination of such patients the virus entered through a small fissure of the skin. In one case infection occurred at a necropsy. There was no absolute protection against such an accident; a too energetic disinfection of the hands by chemical agents should even be avoided because the skin became rough and full of fissures; plain washing with hot water and soap was sufficient. Lesions of the skin must be cauterised by nitrate of silver or tincture of iodine and protected by adhesive plaster and collodion. When symptoms of constitutional infection were developed medical men were apt to become somewhat despondent and to be haunted by apprehensions of tabes and progressive paralysis. The cases of syphilis observed by Dr. Blaschko in members of the profession were, however, far from being serious. The question whether a syphilitic practitioner might continue to practise was not easy to answer. Theoretically he of course ought to abstain from doing so but this was scarcely possible for the great majority of medical men. A medical man ought, however, to abstain from surgical work as long as a primary ulcer existed on his finger.

Neurasthenia in a Russian Naval Officer.

An interesting case was shown by Dr. Holländer at a recent meeting of the Berlin Medical society, the patient being a lieutenant in the Russian navy who took part in the defence of Port Arthur and eventually suffered from neurasthenia after an attack on his vessel in the course of which two Japanese sailors tried to strangle him. To escape suffocation he threw himself, together with his assailants, into the sea, became unconscious, and only awoke three weeks afterwards in a Japanese hospital. When Dr. Holländer saw the patient he suffered from marked spasm of the respiratory muscles, fainting fits, and hystero-epileptic convulsions. As the dyspnœa gradually increased and the patient was likely to die from suffocation Dr. Holländer performed tracheotomy, the result being that the respiration at once became normal and when the cannula was removed 12 days later the dyspnœa had totally disappeared. The spasms recurred afterwards but they were comparatively mild and took place only at long intervals.

Feb. 27th.

Medical News.

FOREIGN UNIVERSITY INTELLIGENCE.—*Berlin:* Dr. Hermann Gutzmann has been recognised as *privat-docent* of Internal Medicine.—*Brussels:* Dr. Jean Coppez, Director of the Ophthalmological Clinic, is retiring.—*Innsbruck:* Dr. Franz Bruno Hofmann, assistant to Professor Hering of Leipsic, has been appointed to the chair of Physiology which has been vacant since the death of Professor von Vintschagau several years ago.—*Marseilles:* Dr. Guende has been promoted to the professorship of Clinical Ophthalmology and Dr. Perrin to that of Clinical Dermatology.—*Naples:* Dr. Donato Greco has been recognised as *privat-docent* of Surgery.—*Odessa:* Dr. A. F. Mankovski has been promoted to the ordinary professorship of Histology and Dr. A. V. Korsh to that of Forensic Medicine.—*Paris:* Dr. Segond, *agrégé*, has been promoted to the professorship of Operations and Appliances.

UNIVERSITY OF OXFORD.—In a Convocation held on Feb. 21st the University formally accepted the offer of Mr. Alfred Beit to found a professorship, lectureships, and a prize for an essay in colonial history and recorded its deep gratitude to him for his munificence.—The examination for the degrees of B.M., B.Ch., will commence on Thursday, June 22nd, and will be held in accordance with a time-table published in the University *Gazette* of Feb. 21st.—Natural science scholarships are announced for competition as follows: March 14th, Keble College; May 2nd, Merton College and New College; and July 4th, Brasenose College.

LITERARY INTELLIGENCE.—Two books have just been issued by Messrs. J. and A. Churchill which are of interest to lecturers on medicine and human physiology. "A Text-book of Physiological Chemistry," by Dr. Charles E. Simon, late assistant resident physician at Johns Hopkins Hospital, Baltimore, is designed as a text-book for the lecture room and as a guide in the physiologico-chemical laboratory. In the first section of the werk a general survey is given of the origin and the chemical nature of the three great classes of food-stuffs and also of the most important products of their decomposition; the second section deals

essentially with the processes of digestion, resorption, and excretion; while the third portion of the work is devoted to the chemical study of the elementary tissues and the various organs of the animal body, the specific products of their activity, and their relation to physiological function. "A German-English Dictionary of Terms used in Medicine and the Allied Sciences," by the late Mr. Hugo Lang, edited and completed by Dr. Bertram L. Abrahams, assistant physician to the Westminster Hospital, is issued by the same firm. Great care has been used in the completion of the work which is the only recent one of the kind available to students.

VACCINATION GRANT.—Mr. H. C. P. Masser, M.R.C.S. Eng., public vaccinator of the Foleshill and Sowe and Stoke districts of the Foleshill union, has again received the Government grant for successful vaccination.

THE LATE MR. A. K. CROSSFIELD.—An excellent painting of the late Mr. Arthur Kyffin Crossfield, L.R.C.P., L.R.C.S. Edin., has been presented to the Dartmouth Cottage Hospital by the committee of that institution in memory of the valuable services which he rendered to the hospital as one of the honorary medical officers. The picture will be hung in the committee room.

OBSTETRICAL SOCIETY OF LONDON AND THE EXAMINATION OF MIDWIVES.—The last examination of midwives held by the board established by the Obstetrical Society of London for the purpose took place last week, concluding with the oral examinations on Feb. 23rd and 24th. There were 674 candidates. 559 passed and will receive the society's certificate. Since the institution of the board in 1872 the grand total of candidates amounts to 12,805, of whom 10,581 have received certificates. The examination of midwives will be conducted henceforth by the Central Midwives Board.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, MARYLEBONE-ROAD, N.W.—The annual meeting of governors of, and subscribers to, Queen Charlotte's Hospital was held on Feb. 27th, Mr. F. W. Hunt presiding. The chairman referred to the great loss that the hospital had sustained by the death of the Earl of Hardwicke who had ably filled the office of chairman of the committee for over six years. The report stated that 1456 women had been delivered in the hospital during 1904 and 1754 had been attended and nursed in their own homes. The ordinary expenditure had amounted to £5829, whereas the ordinary income was £5093 only, including £500 from King Edward's Hospital Fund and £683 the proceeds of the concert given by Madame Melba in aid of the hospital. The legacy under the will of the late Edmond Dresden, to form the "Dresden Assistance Fund" (to be applied solely for the purpose of assisting patients on leaving the hospital), had been received and would enable the committee to help a considerable number of necessitous patients. In order to provide for the increased number of patients and nurses the Nurses' Home had been enlarged by purchasing three houses adjoining the home and three rooms in the hospital had been converted into wards, increasing the total accommodation for patients to 69 beds. An expenditure of over £4000 had thereby been incurred, towards which the committee earnestly appealed for contributions.

CENTRAL MIDWIVES BOARD.—The members of the Central Midwives Board met on Feb. 23rd at 6, Suffolk-street, Pall Mall, London, Dr. F. H. Champneys being in the chair. A letter was received from the clerk of the Lindsey county council inclosing a copy of a resolution of the Midwives Act committee of that council regretting that the stringency of the regulations of the Central Midwives Board involves the retirement from practice on April 1st next of a large number of midwives who have hitherto satisfactorily discharged their duties. It appeared that in Lindsey only five women out of a total of 94 carrying on the work of midwives have applied for certificates under the Act. The clerical work required by the Board's regulations seems to be objected to specially by these women. As the Central Midwives Board has no dispensing power the secretary was directed merely to acknowledge the receipt of the letter. A letter was received from the Herefordshire County Nursing Association inclosing a copy of a resolution passed by the general county committee of that association protesting against the rule prohibiting a midwife from undertaking the duty of laying out the dead. It was asserted that the usefulness of the midwives in country districts was thereby seriously hampered. The secretary was directed to write stating that the resolution has been taken note of by the Board. On the motion of Miss R. Paget, seconded by Mrs. J. Latter, the Board resolved "that no institution with less than 75 deliveries annually shall be approved as a training school." The total number of women on the roll of midwives on Feb. 23rd was 15,490.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Public Health Acts Amendment Bill.

The object of Sir ALFRED HICKMAN'S Bill to amend the Public Health Acts, to which reference was made in THE LANCET of Feb. 25th, is to save corporate bodies the expense of obtaining Acts of Parliament to enable them to deal with various matters such as sanitary provisions, streets, buildings, sewers, infectious diseases, milk-supply, common lodging houses, and recreation grounds. In previous sessions the Bill was twice read a second time; it was also referred to a select committee and finally adopted by the Government which promised to legislate in the King's Speech of 1903.

Registration of Nurses.

Mr. MUNRO-FERGUSON has introduced a Bill to regulate the qualifications of trained nurses and to provide for their registration. It has the support of Dr. R. FARQUHARSON, Mr. R. B. HALDANE, Sir THOMAS WRIGHTSON, Sir JAMES JOICEY, Mr. HUGH CRAWFORD SMITH, Mr. BLACK, Mr. EVE, and Dr. E. C. THOMPSON.

The Pharmacy Bill.

The text of the Pharmacy Bill, which was brought in last week by Mr. LOUGH, has now been circulated amongst Members, together with a memorandum which summarises the objects desired as follows:—(*a*) To check the modern and growing practice on the part of a duly qualified person to open and to carry on divers shops for the sale of poisons whereby adequate protection is not afforded to the persons frequenting the same by providing that every such shop shall be under the *bonâ-fide* personal conduct and supervision of a duly qualified person; (*b*) to put an end to the abuses at present attending the hawking of poisons and better to regulate the sale of the same by providing that no poison shall be sold except in a shop which shall first have been duly registered; (*c*) to provide for the maintenance of a register of shops where poisons may be sold and also a register of the duly qualified druggists *bonâ fide* conducting each such shop, and to enable the registrar from time to time to make corrections in, and additions to, the same; (*d*) to provide that the compounding of prescriptions shall be in the hands only of persons duly qualified to sell "poisons"; (*e*) to require that companies keeping open shops for the sale of poisons shall have that portion of their business managed by a duly qualified druggist as director; (*f*) to extend to corporate bodies certain of the provisions of the Pharmacy Acts, 1852 and 1868, from which they are at present exempt by reason of the decision of the House of Lords in the case The Pharmaceutical Society *v.* The London and Provincial Supply Association, Limited, Law Reports, 1880, Appeal Cases, 857; and (*g*) to facilitate the examination of persons desiring to qualify as chemists and druggists and to enable the Pharmaceutical Society to accept certain certificates of kindred bodies in lieu of examination.

Housing of the Working Classes.

A Bill to amend the Housing of the Working Classes Acts and otherwise to facilitate the building o houses for the working classes in rural districts has been read a first time at the instance of Sir WALTER FOSTER.

HOUSE OF COMMONS.

WEDNESDAY, FEB. 22ND.

Ventilation and Sanitation at Westminster.

Mr. WYLIE asked Lord Balcarres, as representing the First Commissioner of Works, what had been done during the recess for improving the ventilation and sanitary arrangements of the House of Commons buildings; and what, if anything, still remained to be done to fulfil the recommendations of the committee's report on this subject.—Lord BALCARRES replied: During the recess the recommendations of the select committee of the House of Commons with reference to the ventilation have been carried into effect with the exception of the completion of the extract fan. This has been delayed by reason of structural difficulties incidental to the floor of the Commons lobby chamber but it is expected that this fan will be running within a month from the present date. The principal improvements already effected are: (1) the complete washing of the air by means of a new type of water screen; (2) the erection of a much more powerful intake fan; and (3) the more effective isolation of passages joining the main airways. This will be followed by experimental tests having in view the better distribution of air to the Chamber and also by tests of the air so distributed. It is hoped that the works already completed will result in a very considerable improvement in the quantity and the quality of the air-supply.

The War Office and Medical Science.

In the debate on the amendment to the Address which raised the question of army reform Sir WALTER FOSTER discussed the lessons in connexion with the applications of medical science to be drawn from

the South African War and that in the Far East. He laid it down as a canon for War Ministers that whilst among the civil population death from enteric fever was a scandal to the local authority, every death from enteric fever in the course of a war was a crime on the part of a Government department. He also expressed the opinion that the army was still without an adequate medical equipment. What progress, he asked, had been made with the scheme for a school or college in London in which the medical officers in the army could be taught the latest scientific methods of preserving the efficiency of a military force and for a large hospital where they could learn the latest methods of treating and possibly preventing disease? A large hospital had been completed but it was still empty. In these matters the Japanese had set an example which in the interests of humanity and efficiency ought to be followed by every Power.

THURSDAY, FEB. 23RD.

Vaccination Exemption Certificates.

Mr. WEIR asked the Home Secretary whether he was aware that Mr. James Richards of Tunbridge Wells appeared on six different occasions before the local bench of magistrates before he could procure a certificate of exemption from vaccination for his infant child and, seeing that on each occasion he based his objection on the same ground, would he consider the advisability of directing the attention of the bench of magistrates to the remarks made by the Lord Chief Justice on July 27th last when addressing the grand jury at Birmingham relative to the principle on which the Act ought to be administered.—Mr. AKERS-DOUGLAS replied: I have no information respecting the case referred to. The attention of magistrates has already been drawn by a circular issued in September last to all justices' clerks to the remarks made by the Lord Chief Justice at the Birmingham summer assizes on the subject of the principles with which to guide magistrates in dealing with applications for certificates of exemption from vaccination.—Mr. GIBSON BOWLES: Had the issue of the circular any effect upon the conduct of the magistrates?—Mr. AKERS-DOUGLAS: Yes, it had a general effect, although it seems not to have had an effect on the case mentioned in the question if the facts were as stated.

Heavy Infant Mortality in Egypt.

Mr. WEIR asked the Under Secretary of State for Foreign Affairs whether he was aware that in Egypt one-third of the children of the native population died within 12 months of birth and that another third died before they reached five years of age; and whether he would consider the expediency of suggesting to the Government of Egypt that some inquiry should be made with a view to arrest this heavy infant mortality.—Earl PERCY answered: No, Sir, we have no such information.

An Irish Bishop and the Care of Lunatics.

Mr. SLOAN asked the Chief Secretary for Ireland whether he was aware that Dr. Kelly, Roman Catholic Bishop of Cloyne, had been permitted by the Lord Lieutenant, and contrary to the advice and remonstrance of the inspectors of lunatic asylums, to detach 350 lunatics from the County Asylum in Cork and to lodge them in an unused industrial school at Youghal, which he had prepared for this purpose, that the bishop received a capitation grant for each patient, that there was no resident medical officer to take charge of these patients nor any qualified nurses in charge of them, that the house built and arranged for a medical officer had been handed over to the chaplain, and that the resident medical superintendent of the Cork Asylum had been refused permission to visit the auxiliary asylum; and, if so, whether he would say what steps, if any, he intended to take in the matter.—Mr. WYNDHAM answered: In 1901 the Lord Lieutenant, under Section 9 (4) of the Local Government (Ireland) Act, 1898, signified his approval of the plans for the conversion of an industrial school building at Youghal into an auxiliary asylum established for about 400 patients under the 76th Section of the Act. The plans, which were submitted in 1900 by the Cork district asylum committee, of which Dr. Kelly, Lord Bishop of Ross, is a member, were recommended for His Excellency's approval by the inspectors of lunatic asylums. A capitation grant of 2*s.* per week is payable for each patient in the auxiliary asylum under Sections 56 and 76 of the Act. There is no resident medical officer as the committee decided to appoint a visiting medical officer instead, but the consent of the Lord Lieutenant to the appointment of a visiting medical officer has only been given as a tentative measure which will be open to reconsideration in the event of the arrangement being found defective. The institution has been placed in charge of a community of nuns who are assisted by ordinary asylum attendants. It is understood that only Roman Catholic patients are to be sent to the auxiliary institution. The house built for a medical officer has been handed over as a residence for the chaplain. The resident medical superintendent of the Cork Asylum has not been refused permission to visit the auxiliary asylum but the committee of management has passed resolutions taking away from the resident medical superintendent all responsibility for discipline and domestic management of the auxiliary institution. The committee has been informed that these resolutions are illegal and has been called upon to correct the illegality.

Recommendations of the Committee on Physical Deterioration.

Dr. MACNAMARA asked the First Lord of the Treasury whether he would afford the House an opportunity of discussing the report and recommendations of the Committee on Physical Deterioration (1904).—Mr. BALFOUR said: I could not give a pledge as to finding facilities for discussing this topic.

Experiments on Animals.

Mr. TOMKINSON asked the Home Secretary whether his attention had been called to the cases tried in Bedford police court on Feb. 9th last in which fines were imposed for the stealing of cats and in which evidence was given that large consignments of cats had been sent by one of the defendants to a house in a London suburb alleged to be visited by medical gentlemen; and whether he would order the publication of the address of the house in question and an investigation into the practices carried on in it.—Mr. AKERS-DOUGLAS replied: Yes, Sir; and I have made inquiry into the matter. The name of the house in question (Brockwell Hall, Herne Hill) is given in the newspaper reports of the proceedings. The premises are registered as a place where experiments can be performed under the Act 39 & 40 Vict., Cap. 77, and are under inspection. The experiments there are carried on in strict conformity with the law. The director of these laboratories informs me that the cats were purchased in the ordinary way from a dealer in cats and dogs and that neither he (the director) nor anyone else connected with the institution had the slightest suspicion that this dealer was other than a perfectly honest man. The director further informs me that on reading the reports in the press he communicated with the head constable of the Bedford police and sent to him the cats which had been received from Bedford, in order that they might be inspected by any persons who had lost cats. If animals are obtained in an improper manner the offenders are amenable to the ordinary law and in the present case a conviction has been obtained.—Sir FREDERICK BANBURY asked the Home Secretary whether his attention had been called to the evidence given in the case at the Bedford police court on Thursday, Feb. 9th, when three men were convicted of cat stealing, to the effect that the animals stolen by these men were consigned to the licensed vivisectors' laboratory at Herne Hill and whether, in these circumstances, he would institute inquiries as to the sources from which animals are generally obtained by vivisectors for the purpose of experiments.—Mr. AKERS-DOUGLAS replied: The facts of this matter are given in my answer to the previous question. As I there stated persons who improperly obtain possession of animals can be dealt with by the ordinary law. It would be beyond the functions of the Secretary of State, under the Act 39 & 40 Vict., Cap. 77, to institute such general inquiries as are suggested by the honourable baronet, but I am always ready, as in the present instance, to investigate any particular case in which alleged abuses are brought to my notice.

Irish Local Government Board and Maternity Nursing.

Mr. JOHN O'DONNELL asked the Chief Secretary for Ireland whether he was aware that a copy of the evidence taken at the recent sworn inquiry at Claremorris regarding the appointment of a maternity nurse for Ballyhaunis dispensary district had been applied for by a member of that board of guardians and refused; and, if so, whether he would have one supplied to this gentleman at the earliest opportunity.—Mr. WYNDHAM answered: No such application has been received. A copy of the minutes of evidence has been before the board of guardians since December last and it is open to any guardian to read the evidence contained in this document which is the property of the guardians.

Mr. O'DONNELL also asked the Chief Secretary for Ireland whether he was aware that the Local Government Board had issued a sealed order compelling the Claremorris board of guardians to elect a trained maternity nurse for the Ballyhaunis dispensary district, that the medical officer and other representative men from the district swore there was no necessity for the appointment of such a nurse, that there were two medical men and two trained maternity nurses already practising in that district, and that the evidence of the relieving officer of the district showed there was an average of only three or four applications from the poor each year for assistance; that some of the parties whose names were put to a memorial praying for a nurse had repudiated all knowledge of the matter; and, if so, whether he would give instructions to have the sealed order withdrawn.—Mr. WYNDHAM replied: The evidence of the medical officer at the local inquiry was not to the effect alleged. His evidence clearly showed that no provision existed for the skilled nursing of midwifery cases amongst the poor and that the appointment of a midwife for the purpose was essential. He stated that the births during the past three years averaged 282; that two deaths had occurred in the same period, one of which, in his opinion, was preventable if the services of a trained midwife had been available; and that there had been a number of still-births in the district attributable largely to the absence of a skilled attendant. The relieving officer stated he had been obliged to requisition the assistance of a midwife on four occasions during the year. It is understood that there is a midwife resident at Ballyhaunis but she is not an officer of the union and her services are not, therefore, available for the poor free of charge. It is not proposed to withdraw the sealed order.

Physique of Recruits.

Sir JOHN GORST, in the course of the resumed debate on army reform, made some remarks about the physique of recruits. He said it was the worst kind of economy to take men of inferior health and constitution to serve in the army when it was known that this inferiority was preventable. Continental nations took very great care that their boys and girls in the elementary schools were kept in efficient health. These nations were compelled to take that care by the fact that they were so dependent on the physique of their populations. Here matters were allowed to drift unheeded but he hoped that the Government would do something.

FRIDAY, FEB. 24TH.

Allegations against Asylum Nurses.

Mr. SLOAN asked the Chief Secretary for Ireland whether his attention had been called to the report of inspectors of lunacy which was submitted to a meeting of the committee of management of the Monaghan and Cavan Lunatic Asylums on Feb. 16th, in which Nurse Holland was condemned as unfaithful and untrustworthy in the discharge of her duties and was found guilty of perjury against another official; and if so whether he would consider in the interest of the public service the advisability of demanding Nurse Holland's resignation.—Mr. WYNDHAM answered: The inspectors in their report expressed the opinion that Nurse Holland, on whose statements the charge against one of the other asylum officials was based, is entirely unfitted for her position having regard to her faithlessness in the discharge of her duties and the untrustworthiness of her statements. The committee of management by a majority decided, however, to retain her services. The matter is engaging the consideration of the Government.

MONDAY, FEB. 27TH.

Epidemics in Highland Schools.

Mr. WEIR asked the Lord Advocate whether, in view of the insanitary condition of many parishes in the island of Lewis and the frequent closing of the public schools in consequence of epidemics of fever and other contagious diseases, arrangements would be made for the medical inspector, or one of the inspecting officers of the Local Government

Board for Scotland, to visit the island in order that a report as to the best mode of dealing with the insanitary conditions might be secured and considered.—The LORD ADVOCATE said: The Local Government Board is prepared to entertain the suggestion made by the hon. Member and will endeavour to arrange for a report to be prepared by one of its staff as soon as his other duties permit.

Recommendations of the Committee on Physical Deterioration.

Sir JOHN GORST asked the Home Secretary what steps His Majesty's Government was taking to carry out any of the recommendations of the Committee on Physical Deterioration which related to matters within the jurisdiction of his department.—Mr. AKERS-DOUGLAS said: I fear I cannot undertake to answer in detail as to those of the committee's proposals in which my department is concerned. Some of these proposals appear to be put forward as suggestions for further consideration rather than as definite recommendations, and I could not take steps to give effect to them without first collecting more information than has been obtained by the committee. Perhaps I may be allowed to say briefly that the committee's recommendations, several of which are engaging my attention, will not be lost sight of. The important subject of defective children, to which the committee refers in recommendation No. 53, is now made the consideration of a Royal Commission.—Dr. MACNAMARA: May I ask whether it is still the view of the Government that it cannot do anything in favour of the recommendation prohibiting cigarette smoking among children?—The SPEAKER: Order, order.

Sir JOHN GORST asked the President of the Local Government Board what steps were being taken to carry out the recommendations in so far as they came within the jurisdiction of his department.—Mr. LONG replied: The recommendations made by the committee are very numerous and so far as they relate to matters within the province of my department effect cannot be given to any of them without legislation. A committee which I have appointed, after consultation with the Home Secretary, is inquiring into one important matter referred to by the committee—viz., vagrancy—and I am giving consideration to other subjects referred to in the report so far as I am concerned in them.—Sir JOHN GORST: May I ask whether one of these subjects is the regulation of the milk supply?—Mr. LONG replied that that was an extremely difficult and involved matter which did not come under his department alone, but it was under consideration.

Sir JOHN GORST further asked the Secretary to the Board of Education what action he was taking on the report.—Sir WILLIAM ANSON answered: The recommendations which would appear to fall within the existing administrative powers of the Board of Education are recommendations Nos. 17, 18, 20, and 37. The Board had had under its consideration for some time the subjects of these recommendations and had taken, and is taking, steps which it hopes may be of some practical utility on the lines indicated in the report. It is also taking steps, so far as legislation is not involved, to give effect to recommendation No. 35.

Vaccination of School Teachers.

Mr. WEIR asked the Lord Advocate whether he was aware that the Scottish Education Department recently declined to allow the Renfrew Landward school board to engage a girl as a pupil teacher on the ground that she had not been successfully vaccinated; whether he would explain why this veto was imposed, especially having regard to the fact that the code of regulations issued by the department did not indicate that successful vaccination was a necessary condition of appointment; and whether he would state why a pupil teacher who had had small-pox was not accepted as eligible for appointment unless successfully vaccinated.—The LORD ADVOCATE answered: It is the fact that the department declined to recognise a girl as a pupil teacher on the ground that she had not been vaccinated. The rule on which this decision was based is a general one imposed in the interests of the health of the children. As regards the last part of the question no case of the kind referred to has yet called for the department's decision

Medical Officers in the Highlands and Islands.

Mr. WEIR asked the Lord Advocate whether the Local Government Board had yet considered the expediency of increasing the number of medical officers for the Highland crofting counties and rearranging the area under their respective control.—The LORD ADVOCATE replied: The Local Government Board has long advocated the appointment of a separate medical officer for the islands pertaining to the counties of Inverness and Ross and has reason to believe that the proposal is favourably regarded by the county councils concerned. The views of the Local Government Board regarding the Poor-law medical relief in the Highlands and islands at large are fully set forth in the report of the Board's departmental committee issued a year ago.

Guardians and Medical and Surgical Appliances.

Mr. SHEEHY asked the Chief Secretary for Ireland whether he was aware that the Local Government auditor had surcharged three members of the Killadysert union £6 18s. 2d., being for medical and surgical appliances; and that the guardians surcharged appealed to the Local Government Board; and, if so, whether the surcharge had been sustained by the Local Government Board and what were the grounds for the surcharge.—Mr. WYNDHAM said: The facts are correctly stated. The grounds for the surcharge, which was upheld by the Local Government Board, were that the amount surcharged represented the cost of medical and surgical appliances supplied over and above the reasonable wants of the medical officer and that the payment was excessive and exorbitant.

TUESDAY, FEB. 28TH.

Underfed Children.

Dr. MACNAMARA asked the Secretary to the Board of Education whether any local education authorities had either petitioned or forwarded resolutions to the Board of Education in favour of such an extension of their powers as would enable them, out of the funds at their disposal, to provide food for underfed children on the lines suggested in the unanimous recommendation of the Committee on Physical Deterioration (1904).—Sir WILLIAM ANSON replied: The Board has received resolutions on the lines referred to in the question from the following three local education authorities: in MAY, 1904, from Reading county borough; in December last from Sheffield county borough; and in January last from Tottenham urban district.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.

ADDISON, WILLIAM B., M.B., B.C., M.R.C.S., L.R.C.P. Lond., has been appointed a Medical Referee under the Workmen's Compensation Acts, 1897 and 1900, and to act for Croydon and Epsom County Courts in County Court Circuit No. 45.

ALDOUS, G. F., F.R.C.S. Edin., has been appointed Assistant Surgeon to the East Cornwall Hospital, Plymouth.

BLACKBURN, C. B., M.D. Syd., has been appointed Honorary Pathologist to the Royal Alexandra Hospital for Sick Children, New South Wales.

BRADLEY, J., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Gortin District of the county of Tyrone.

BROADBENT, P. L., M.B. Syd., has been appointed Junior Medical Officer in the Lunacy Department, New South Wales.

COOPER, H. W., M.D., has been appointed Government Medical Officer and Vaccinator at Wyong, New South Wales.

FOX, E. L., M.D. Cantab., has been appointed Physician to the East Cornwall Hospital, Plymouth.

GRAHAM, A. W., M.B. Lond., M.R.C.S., L.R.C.P. Lond., has been appointed Port Health Officer at Beauty Point, Tasmania.

GRUNER, O. C., M.B. Lond., has been appointed Honorary Pathologist to the Leeds Public Dispensary.

KILLICK, C. R., M.B. Lond., L.S.A., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Williton District of the county of Somerset.

LUCY, R. H., M.B., C.M. Edin., has been appointed Surgeon to the East Cornwall Hospital, Plymouth.

MORRICE, GEORGE GAVIN, M.A., M.D. Cantab., M.R.C.P., has been appointed Honorary Physician to the Dorset County Hospital.

MYLES, THOMAS WILLIAM, B.A., M.B., B.Ch. Irel., R.N., has been appointed temporarily Surgeon to the Plymouth Division of Royal Marines.

PARDEY, J. M., M.B., Ch.B., has been appointed Honorary Medical Officer to the Launceston Hospital, Tasmania.

PATTERSON, D. WELLS, M.B., B.S. Durh., has been appointed Honorary Physician to the Hospital for Diseases of the Skin, Newcastle-on-Tyne.

POPE, G. STEVENS, L.R.C.P. & S. Edin., L.F.P.S. Glasg., has been appointed Medical Superintendent of the Somerset and Bath County Asylum, Wells, Somerset.

PRENDERGAST, J. J., M.D. Dub., has been appointed Local Health Officer at Strahan, Tasmania.

RENDLE, C. E. RUSSELL, L.R.C.P. Lond., M.R.C.S., has been appointed Assistant Surgeon to the East Cornwall Hospital, Plymouth.

SMITH, E. G., M.R.C.S., L.R.C.P. Lond., has been appointed Anæsthetist to Out-patients at the East Cornwall Hospital, Plymouth.

SOLTAU, BERTRAM, M.D. Lond., has been appointed Physician to the East Cornwall Hospital, Plymouth.

WEBBER, H. W., F.R.C.S. Edin., has been appointed Assistant Surgeon to the East Cornwall Hospital, Plymouth.

WHITEFORD, C. HAMILTON, M.R.C.S., L.R.C.P. Lond., has been appointed Anæsthetist to In-patients at the East Cornwall Hospital, Plymouth.

WHITEFORD, W. CROSBIE, has been appointed Anæsthetist to In-patients at the East Cornwall Hospital, Plymouth.

WHIPPLE, C., L.R.C.P. Lond., M.R.C.S., has been appointed Surgeon to the East Cornwall Hospital, Plymouth.

WILMOTT, ROBERT, F.R.C.S. Edin., has been appointed Official Visitor to the Hospital for the Insane, Launceston and New Norfolk, Tasmania.

WOOLLCOMBE, W. L., L.R.C.P. Lond., M.R.C.S., has been appointed Surgeon to the East Cornwall Hospital, Plymouth.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BIRKENHEAD BOROUGH HOSPITAL.—Assistant Honorary Medical Officer.

BIRKENHEAD UNION, INFIRMARY, WORKHOUSE, AND SANATORIUM.—Resident Assistant Medical Officer. Salary £120 per annum, with board, washing, and apartments.

BRADFORD CHILDREN'S HOSPITAL.—House Surgeon. Salary £100.

BRIGHTON THROAT AND EAR HOSPITAL, Church-street, Queen's-road.—Non-Resident House Surgeon for six months, renewable. Salary at rate of £75 per annum.

BRISTOL ROYAL INFIRMARY.—Honorary Physician.

CARLISLE, CUMBERLAND INFIRMARY.—Resident Medical Officer. Salary at rate of £80 per annum, with board, lodging, and washing.

CHELTENHAM GENERAL HOSPITAL.—Junior House Surgeon, unmarried. Salary £50 per annum, with board and lodging. Also Surgeon-in-Charge (unmarried) of Branch Dispensary. Salary £90 per annum, with board and lodging.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria-park, E.—Resident Medical Officer. Salary £100 per annum, with board, &c. Also Pathologist. Salary 100 guineas per annum.

DUDLEY, GUEST HOSPITAL.—Assistant House Surgeon for six months. Salary £40 per annum, with residence, board, and washing.

DUMFRIES AND GALLOWAY ROYAL INFIRMARY.—Assistant House Surgeon. Salary £25 per annum, with board and washing.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark, S.E.—Physician to Out-patients. Also Eight Qualified Clinical Assistants, out-patient department.

GLASGOW UNIVERSITY.—Grieve Lectureship on Physiological Chemistry.

GREAT NORTHERN CENTRAL HOSPITAL, Holloway, N.—Physician to Out-patient Department for Diseases of Women. Also Senior House Surgeon, Two Junior House Surgeons, and a Junior House Physician, in each case for six months. Salary of Senior Officer at rate of £80 per annum and of Junior Officers at £30 per annum, with board, lodging, and washing. Also Pathologist and Curator. Salary 50 guineas per annum.

HAMPSTEAD GENERAL HOSPITAL.—Resident Medical Officer for six months, renewable. Salary at rate of £120 per annum and allowance for rooms.

LEEDS GENERAL INFIRMARY.—Resident Casualty Officer. Salary £100 per annum, with board, lodging, and washing.

LINCOLN COUNTY HOSPITAL.—Senior House Surgeon, unmarried. Salary £100 per annum, with board, lodging, and washing. Also Junior House Surgeon for six months, renewable. Salary £25 for each period of six months, with board, residence, and washing.

LONDON HOSPITAL, Whitechapel, E.—Assistant Surgeon.

LONDON TEMPERANCE HOSPITAL.—Assistant House Surgeon for six months. Honorarium at rate of £75 per annum.

MACCLESFIELD GENERAL INFIRMARY.—Junior House Surgeon. Salary £50 per annum, with board and residence.

METROPOLITAN HOSPITAL, Kingsland-road, N.E.—House Physician, House Surgeon, Assistant House Physician, and Assistant House Surgeon, all for six months. Salaries of Senior Officers at rate of £40 a year; of Assistants at rate of £20 a year.

MIDDLESBROUGH, YORKSHIRE, COUNTY BOROUGH ASYLUM.—Medical Superintendent. Salary £450 per annum, with house, rates, taxes, &c.

MIDDLESEX HOSPITAL, W.—Second and Third Assistants to the Director of the Cancer Research Laboratories. Salaries £125 and £100 respectively.

MONTLACH PARISH, Dufftown, Banffshire.—Resident Medical Officer. Salary £35 per annum and fees.

NATIONAL HOSPITAL FOR THE RELIEF AND CURE OF THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury.—Assistant Physician for Out-patients.

NORFOLK AND NORWICH HOSPITAL.—Second Assistant House Surgeon for six months. Honorarium £20, with board, lodging, and washing.

NORTHAMPTON GENERAL HOSPITAL.—Assistant House Surgeon, unmarried. Salary £50 per annum, with apartments, board, and washing.

OLDHAM INFIRMARY.—Senior House Surgeon. Salary £100 per annum, with board, residence, and washing.

ROYAL DENTAL HOSPITAL OF LONDON, Leicester-square, W.C.—Demonstrator of Practical Dental Surgery. Stipend £100, rising to £120 per annum.

ROYAL EAR HOSPITAL, Dean-street, Soho.—Honorary Assistant Anæsthetist.

ROYAL HOSPITAL FOR DISEASES OF THE CHEST, City-road, E.C.—House Physician for six months. Salary at rate of £60 per annum, with board, lodging, and washing.

ROYAL NAVY, MEDICAL DEPARTMENT OF THE, 18, Victoria-street, London, S.W.—Three Dental Surgeons. Salary £1 per diem.

ST. ALBANS, HERTS COUNTY ASYLUM, Hill End.—Junior Assistant Medical Officer. Salary £150 a year, with board, lodging, and washing.

SALOP INFIRMARY.—House Physician for six months, renewable. Salary at rate of £60 per annum, with board and apartments.

WALSALL AND DISTRICT HOSPITAL, Walsall.—Assistant House Surgeon. Salary £60 per annum, with board, residence, and washing.

WEST LONDON HOSPITAL, Hammersmith-road, W.—One House Physician and Three House Surgeons, all for six months. Board, lodging, and laundry allowance.

WESTMINSTER GENERAL DISPENSARY.—Resident Medical Officer. Salary at rate of £120 per annum, with coals, gas, coal, and attendance.

WISBECH, NORTH CAMBRIDGESHIRE HOSPITAL.—Resident Medical Officer, unmarried. Salary £100 per annum, with board, attendance, coals, gas, and washing.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—Assistant House Surgeon for six months. Honorarium at rate of £75 per annum, with board, lodging, and washing.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies as Certifying Surgeons under the Factory and Workshop Act at Winterton, in the county of Lincoln; and at Doune, in the county of Perth.

Births, Marriages, and Deaths.

BIRTHS

COLMAN.—On March 1st, at 9, Wimpole-street, W., the wife of W. S. Colman, M.D., F.R.C.P., of a son.

LANGDON-DOWN.—On Sunday, Feb. 26th, 1905, at Normansfield, Hampton Wick, to Reginald L. Langdon-Down, M.B., M.R.C.P., and wife—a son.

MARRIAGE.

FORBES—PAUL.—On Feb. 27th, at All Souls Church, Langham-place, W., James Graham, M.D., M.R.C.P., son of the Rev. E. Forbes, incumbent of Christ Church, Clevedon, Somerset, to Muriel Watson, eldest daughter of the late Dr. Ernest Watson Paul, of Cowes, I. of W.

DEATHS.

ALLEN.—On Feb. 25th, 1905, at 3, Carlisle-parade, Hastings, Ella Louise Katherine, wife of Bryan H. Allen, M.D., and daughter of the Rev. E. H. Dover, late vicar of Wilsden, Yorkshire, aged 56 years.

HALSE-FRANCIS.—On Dec. 27th, 1904, suddenly, Ferdinand Henry Halse-Francis, M.D. Durh., of Victoria Lodge, West Norwood, England, and Kaikoura, Marlborough, New Zealand, aged 41 years.

KERR.—At 3, Hanger-lane, Ealing, W., suddenly, on Feb. 25th, in her ninth year, Helen, the only daughter of Dr. James Kerr.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

HARVEY AND FINCH: A REMARKABLE MS.

IT will no doubt interest most of our readers to know that Messrs. Sotheby, Wilkinson, and Hodge will include in a sale at their rooms on March 4th a folio MS. Common-Place Book, in the original calf binding, of the celebrated lawyer, Heneage Finch, afterwards Earl of Nottingham and Lord Chancellor, which contains two pages with long and curious medical directions in the autograph of his far more illustrious uncle and physician, Dr. William Harvey, written in 1647, when Harvey was aged 69 and Finch 26 years. As the sale catalogue states, "Even the signature of this great anatomist is of the utmost rarity. *Nowhere else outside the British Museum can so much of his handwriting be found as in the present MS.*, which came from Miss Finch of Maidstone at her death some 40 years ago." The well-known antiquary and Harveian scholar, Mr. W. J. Harvey, has examined the MS. and added several interesting particulars, stating that probably the medical directions alluded to above were for the relief of rheumatism, from which it is not generally known that Finch suffered in his younger years. Mr. Harvey has discovered that about 70 years ago there was extant among the Southwell MSS. a most interesting letter from Thomas Henshaw, F.R.S., to Sir Robert Southwell, dated May 16th, 1682 (about seven months before Finch's death), mentioning *inter alia*, "Our present Lord Chancellor was for many years in his younger days much grieved with a rheumatism, and never could get a cure for it until he followed the advice of his brother, Sir John Finch, and Dr. Baines, both newly returned from Italy, which was to drink three pints of Bordeaux claret every day. If you should object to me, my Lord Chancellor's gout and stone, I can answer that neither of these seized him till many years after his use of wine, and may very justly be attributed to his much setting." The interest and the importance of the MS. Common-Place Book are, however, vastly increased by the remarkable anticipation of the electric telegraph and wireless telegraphy which it contains on p. 467.

AN IMPROVED HAMMOCK FOR INVALID RAILWAY TRAVELLERS.

To the Editors of THE LANCET.

SIRS,—May I add my testimony to the value of the improved hammock for invalids travelling? I was present at the trial trip from King's Cross to Cambridge and back on Feb. 15th. A great part of the journey I was in the hammock and can speak of it as exceedingly restful and comfortable. We travelled express speed and to make the test more severe were at the end of the train. There was absolutely no lateral swaying, no jarring, and vibration was reduced to a minimum so as to be scarcely perceptible. The only movement was a rocking from head to feet whilst passing over points or round sharp curves, and that is easily preventable. The Great Northern Railway inspector would, I believe, corroborate these statements. It is much to be hoped that these hammocks may be adopted by the railway companies and so make it possible for invalids of moderate means to travel in ease and comfort.

I am, Sirs, yours faithfully,

Feb. 25th, 1905. THE MOTHER OF AN INVALID.

SUPERFLUOUS HAIRS.

M.B., having read Dr. Balmanno Squire's article on epilectrolysis which we published last week, asks for further advice from our readers in the treatment of superfluous hairs occurring on the chin, putting the following questions: Has treatment by the x rays any advantage over electrolysis? Is either a permanent cure? Is there any scarring where the x rays are used? Do the x rays inhibit a further accumulation of new hairs or do they only destroy those already existing?

THE REMOVAL OF BODIES.

SOME criticisms have been made as to the action of the police in a case where Mr. E. A. Gibson, the Manchester coroner, ordered the removal of a body for the purpose of having a post-mortem examination made. He had, of course, the right to do this by virtue of his office. There seems to be no special provision made for the removal of bodies in the comparatively few cases where the coroner may deem it necessary. A newspaper correspondent charged the police with carrying out the removal "in a brutal manner" and suggested that the horse ambulance should have been requisitioned, which would have been preposterous. Ambulances are intended and used for conveying patients to the hospitals and it would not tend to make them popular vehicles for that purpose if it were known that they were also used for carrying dead bodies. The charge of brutality seems unfounded. A stretcher was taken into the house, the body was placed upon it, covered up, and carried away on the "hand ambulance," as it is called—that is, the framework with wheels on which the stretcher is placed. No doubt the method might be improved on. It is not a pleasant spectacle to see this gruesome carriage with its dead or injured burden wheeled along the street, but

at present there seems no way of avoiding it. The coroner said that personally he should like bodies removed in an undertaker's van but he had no power to order it. In connexion with this case the chief constable reported to the watch committee that every consideration was shown to the relatives and every possible respect paid to the body. If the committee provided a special van the police would use it for the purpose. It may be hoped that this concession to a widespread and instinctive feeling may be made.

INCURABLE PATIENTS.

To the Editors of THE LANCET.

SIRS,—May I inquire through your columns if any of your readers now of an institution which takes in incurable patients *on payment?*

I am, Sirs, yours faithfully,

JOHN GAY.

137, Upper Richmond-road, Putney, S.W., Feb. 21st, 1905.

SOME QUESTIONS WITH REGARD TO MILK-SUPPLY.

To the Editors of THE LANCET.

SIRS,—1. Supposing pastures are manured by human excrement from pails or middens or with farmyard manure early in April and cows are turned out to graze on the same pastures in May, can the milk obtained from these cows be pure and wholesome? I have noticed a large mortality amongst lambs on such pastures.

2. Suppose milking-cows have for their only drink in the long hot summer days water from stagnant pools—say a pool 20 feet in diameter and two feet deep for a dozen cows—beautifully iridescent on the surface, which also reveals the distended bellies of dead pups and kittens, the cows stand in the pool and further pollute it, can the milk obtained from these cows be pure and wholesome? I am told that this is "all right, cows prefer such water." It appears to me that unless the milk is pure as it comes from the cow's udder no subsequent processes to which it may be subjected can make it into a wholesome "food."

I am, Sirs, yours faithfully,

Feb. 26th, 1905. C. C.

THE CASE OF DR. A. D. GRIFFITHS.

To the Editors of THE LANCET.

SIRS,—Will you kindly allow me to acknowledge the receipt of the following additional contributions?

I am, Sirs, yours faithfully,

ALEXR. P. FIDDIAN, Treasurer.

23, The Walk, Cardiff, Feb. 28th, 1905.

	£	s.	d.		£	s.	d.
Amount previously acknowledged	40	6	6	Mr. D. Valentine Rees...	0	10	6
Mr. G. Baynton Forge...	1	1	0	Mr. Griffith Griffiths ...	0	10	6
Dr. D. Cargill Martin ...	1	1	0	Mr. T. J. Webster	0	10	6
Mr. H. C. Bevan	1	1	0	Mr. E. Rice Morgan ...	0	10	6
Dr. Frank G. Thomas ...	1	1	0	Mr. W. F. Brook	0	10	6
Mr. B. Dayman	1	1	0	Mr. G. Arthur Brown ...	0	10	6
Mr. Pierce Nagle Creagh	0	10	6	Mr. H. T. Evans	0	10	6
Mr. W. W. Leigh	0	10	6	Mr. J. F. Neville	0	10	6
Dr. J. D. Jenkins	0	10	6	Mr. J. D. O'Sullivan ...	0	5	0
Mr. J. S. H. Roberts ...	0	10	6	Dr. W. D. Steel	0	5	0
Dr. W. Wilson...	0	10	6	Dr. Thomas Evans... ...	0	5	0
				Mr. W. Morgan	0	5	0

Nemo.—1. If the person responsible for the payment has given the patient into Dr. B's charge and if the patient's parents have not signified to Dr. B any desire that their child should be in other hands we think it will be difficult to formulate any charge of unprofessional behaviour against Dr. B. 2. This question is practically answered above, but if Dr. B has heard from Dr. A that the child's parents do desire, despite their silence, that he should be attended by their medical man—viz., Dr. A—we think that Dr. B might well associate Dr. A with him in the case.

Amicus.—It appears that B and C having their headquarters quite near each other have now, each of them, got a branch or agency centre at the other's door. We do not in those circumstances think either can be said to have a grievance against the other, but if a sense of wrong exists it would be better that they should refer the matter to a common friend, agreeing to abide by his decision. The situation is one upon which professional colleagues should not quarrel.

G. T. W.—We agree with our correspondent that his dismissal by postcard was discourteous but it must not be assumed that all postcards are read at the post-office and discussed afterwards by the public or that the medical man designed any injury.

Sufferer.—We are unable to find our correspondent's name in the Medical Directory, so that he will not be surprised to find that we are unable to publish what amounts to a serious charge against one of his teachers whom, by the way, he does not specify.

D.P.H.—(A) We know of no convalescent homes exactly of the sort that our correspondent wants where such small payments would be taken. (B) There would be no harm in returning the circulars in the way suggested.

Disgusted.—We cannot subscribe to the doctrine that if B goes back on his word A is entitled to do the same. A should keep his promise despite the absence of a stamped agreement.

Visitor can obtain the information that he seeks from Dr. Dawson Williams, 2, Agar-street, Strand, London, or Dr. W. Johnson Horne, 27, New Cavendish-street, Portland-place.

M.R.C.S.—The treatment is rubbish.

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (6th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Royal Orthopædic (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.).

TUESDAY (7th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Royal Ear (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Central London Throat and Ear (2 P.M.).

WEDNESDAY (8th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.) Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Ormond-street (9.30 A.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.).

THURSDAY (9th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), St. Mark's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.).

FRIDAY (10th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Central London Throat and Ear (2 P.M.), Royal Ear (10 A.M.).

SATURDAY (11th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

SOCIETIES.

MONDAY (6th).—MEDICAL SOCIETY OF LONDON (11, Chandos-street, Cavendish-square, W.).—9 P.M. Dr. G. H. Savage: Mental Disorders of Decay. (Lettsomian Lecture.)

TUESDAY (7th).—PATHOLOGICAL SOCIETY OF LONDON (20, Hanover-square, W.).—Prof. W. D. Halliburton: Recent Researches on Proteid Chemistry and Proteid Diet.

ROYAL MEDICAL AND CHIRURGICAL SOCIETY (20, Hanover-square, W.).—5 P.M. Adjourned Discussion on the Subsequent Course and Later History of Cases of Appendicitis after Operation (opened by the President, Sir R. Douglas Powell). Dr. Hawkins, Mr. Lockwood, Mr. Battle, Sir William Bennett, Mr. Mayo Robson, and others will take part in the discussion.

WEDNESDAY (8th).—BRITISH BALNEOLOGICAL AND CLIMATOLOGICAL SOCIETY (20, Hanover-square, W.).—8.30 P.M. Discussion on the Ethics of Health Resort Treatment (opened by Dr. L. Williams).

DERMATOLOGICAL SOCIETY OF LONDON (11, Chandos-street, Cavendish-square, W.).—5.15 P.M. Demonstration of Cases of Interest.

HUNTERIAN SOCIETY (London Institution, Finsbury-circus, E.C.).—8.30 P.M. Pathological Evening. Exhibition of Specimens.

THURSDAY (9th).—BRITISH GYNÆCOLOGICAL SOCIETY (20, Hanover-square, W.).—5 P.M. Specimens will be shown by Dr. F. Edge. Paper:—Dr. I. Parsons: The Choice of Treatment for Fibromyoma of the Uterus.

HARVEIAN SOCIETY OF LONDON (Stafford Rooms, Titchborne-street, Edgware-road, W.).—8.30 P.M. Mr. M. Morris: Some Modern Therapeutic Methods in Dermatology, with Cases treated by the Roentgen and Finsen Rays. (Harveian Lecture.)

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM (11, Chandos-street, Cavendish-square, W.).—8 P.M. Clinical Meeting. Cases will be shown by Mr. R. Chatterton, Mr. C. Blair, Mr. A. Ogilvy, Mr. J. H. Parsons and Mr. A. Lawson, Mr. J. H. Parsons, Mr. R. E. Bickerton, and Mr. R. McMullen.

FRIDAY (10th).—THE INCORPORATED SOCIETY OF MEDICAL OFFICERS OF HEALTH (9, Adelphi-terrace, Strand, W.C.).—7.30 P.M. Discussion of the Causes of the Increased Prevalence of Anthrax in Great Britain (opened by a paper read by Prof. S. Delépine).

CLINICAL SOCIETY OF LONDON (20, Hanover-square, W.).—8.15 P.M. Mr. J. Berry will exhibit a Case showing the Result of a Rhinoplastic Operation; a paper will be read at a subsequent meeting. 8.30 P.M. Papers:—Dr. W. H. White: A Case of Acute Rheumatoid Arthritis (with epidiascope demonstration).—Dr. B. Abrahams: Arthritis Deformans and its Allies.—Mr. D. Drew: Three Cases of Stenosis of the Ureter.

BRITISH RHINOLOGICAL, LARYNGOLOGICAL, AND OTOLOGICAL ASSOCIATION (Medical Society's Rooms, 11, Chandos-street, Cavendish-square, W.).—4 P.M. Cases will be shown by Mr. C. Nourse, Dr. P. H. Abercrombie, Dr. Kelson, Dr. W. Wingrave, Dr. Lodge, Mr. H. Barwell, and Dr. A. Wylie. Discussion on Dr. J. S. Wallace's paper on Nasal Obstruction and Mouth Breathing.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MONDAY (6th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. J. Galloway: Clinique. (Skin.) 5.15 P.M. Dr. S. Taylor: Aortic Insufficiency.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Dr. Russell: Indigestion.

TUESDAY (7th).—ROYAL COLLEGE OF PHYSICIANS OF LONDON (Pall Mall East).—5 P.M. Dr. T. M. Legge: Industrial Anthrax. (Milroy Lecture.)

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. C. T. Williams: Clinique. (Medical.) 5.15 P.M. Dr. P. Stewart: Gaits and Postures in Organic and Functional Diseases.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Dr. Ll. Williams: Children's Teeth and their Diseases.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (Queen-square, Bloomsbury, W.C.).—3.30 P.M. Dr. Tooth: Cranial Nerves.

NORTH-EAST LONDON POST-GRADUATE COLLEGE (Tottenham Hospital, N.).—4.30 P.M. Demonstration:—Dr. H. Corner: Mental Affections of Childhood and Adolescence.

WEDNESDAY (8th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. J. Cantlie: Clinique. (Surgical.) 5.15 P.M. Dr. F. J. McCann: The Treatment of Puerperal Sepsis.

POST-GRADUATE COLLEGE (Hanwell Lunatic Asylum).—3 P.M. Dr. R. H. Cole: Prognosis in Mental Disease.

CENTRAL LONDON THROAT AND EAR HOSPITAL (Gray's Inn-road, W.C.).—5 P.M. Demonstration: Mr. Nourse: Nasal and Aural Accessory Sinuses.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST (Brompton).—4 P.M. Dr. H. W. G. Mackenzie: The Selection of Cases for Sanatorium Treatment.

THURSDAY (9th).—ROYAL COLLEGE OF PHYSICIANS OF LONDON (Pall Mall East).—5 P.M. Dr. T. M. Legge: Industrial Anthrax. (Milroy Lecture.)

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. Hutchinson: Clinique. (Surgical.) 5.15 P.M. Mr. A. H. Tubby: Orthopædic Surgery.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Mr. Baldwin: Practical Surgery.

CHARING CROSS HOSPITAL.—4 P.M. Mr. Clogg: Demonstration of Surgical Cases. (Post-Graduate Course.)

MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST (7, Fitzroy-square, W.).—5 P.M. Lecture: Dr. T. D. Lister: Bronchial Affections of Children. II. Secondary. (Post-Graduate Course.)

SAMARITAN FREE HOSPITAL FOR WOMEN (Marylebone-road, N.W.).—3 P.M. Dr. McCann: The Treatment of Chronic Metritis.

THE HOSPITAL FOR SICK CHILDREN (Gt. Ormond-street, W.C.).—4 P.M. Lecture:—Dr. Poynton: Facial Palsy.

FRIDAY (10th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. H. W. Dodd: Clinique. (Eye.)

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.) 5 P.M. Dr. Abraham: Cases of Skin Disease.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (Queen-square, Bloomsbury, W.C.).—3.30 P.M. Mr. M. Gunn: Optic Atrophy.

NORTH-EAST LONDON POST-GRADUATE COLLEGE (Tottenham Hospital, N.).—4.30 P.M. Lecture:—Dr. R. M. Leslie: Prognosis in Acute Pulmonary Affections.

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MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index to Vol. II. of 1904, which was completed with the issue of Dec. 31st, and the Title-page to the Volume, were given in THE LANCET of Jan. 7th.

VOLUMES AND CASES.

VOLUMES for the second half of the year 1904 are now ready. Bound in cloth, gilt lettered, price 18*s.*, carriage extra.

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(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Mar. 2nd, 1905.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radia in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks at 8.30 A.M.
Feb. 24	29·92	E.	0·03	42	42	37	38	38	Overcast
,, 25	29·95	S.W.	...	73	47	38	38	39	Raining
,, 26	29·41	S.W.	...	51	47	39	43	44	Raining
,, 27	29·20	S.W.	0·21	62	49	35	39	40	Fine
,, 28	29·31	S.W.	0·02	77	47	35	34	36	Cloudy
Mar. 1	29·28	S.W.	...	59	44	35	36	37	Overcast
,, 2	29·85	N.E.	0·05	59	43	36	37	39	Cloudy

During the week marked copies of the following newspapers have been received:—*Westminster Gazette, Irish Times, Surrey Advertiser, Reading Mercury, Literary Digest (New York), Scientific American, Journal of the Society of Arts, Mining Journal, Daily News, Liverpool Post and Mercury, Daily Chronicle, Standard, Western Mail (Cardiff), Aberdeen Weekly Free Press, Plymouth Mercury, Freeman's Journal, Hertfordshire Mercury, Windsor and Eton Express, Guernsey Star, Pall Mall Gazette, Belfast Whig, Halifax Courier, &c.*

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